RECORD OF DECISION (ROD)

for the

2004-2006 STATE OF NEW MEXICO
§303(d)/§305(b) INTEGRATED LIST FOR
ASSESSED SURFACE WATERS:

New Mexico Environment Department
Surface Water Quality Bureau
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, New Mexico 87502

June 8, 2004

Note: The following watersheds and/or waterbodies were studied during this biennial listing cycle: Upper Rio Grande from the confluence with the Jemez River north to Embudo Creek, Upper Pecos from Ft Sumner north to the headwaters including the Gallinas River, Valle Caldera, San Juan River, western portion of the Canadian River, and Mimbres River

The majority of impairment determinations outside of these watershed studies, with few individual exceptions, remain unchanged from the 2002-2004 §303(d) list.

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Preface

This Record of Decision document is a historical record of impaired surface waters (i.e., "Category 5 waters") provided to reviewers and users of the list and USEPA to help track listing and de-listing information used in the development of New Mexico's Integrated 303(d)/305(b) list and report. USEPA does not require this document and do not official approve or disapprove this document or any of its contents.

The following list of definitions extracted from the *State of New Mexico Standards for Interstate and Intrastate Surface Waters* (NMAC 20.6.4) is provided to the reader for clarity.

DEFINITIONS

"coldwater fishery"
means a surface water of the state where the water temperature and other characteristics are suitable for the support or propagation or both of coldwater fishes.

"designated use or uses"
means those uses specified in Sections 20.6.4.101 through 20.6.4.899 NMAC for each surface water of the state whether or not they are being attained.

"domestic water supply"
means a surface water of the state that may be used for drinking or culinary purposes after disinfection.

"ephemeral stream"
means a stream or reach of a stream that flows briefly only in direct response to precipitation or snowmelt in the immediate locality; its channel bed is always above the water table of the region adjoining the stream and does not support a self-sustaining population of fish.

"fish culture"
means production of coldwater or warmwater fishes in a hatchery or rearing station.

"high quality coldwater fishery"
means a perennial surface water of the state in a minimally disturbed condition which has considerable aesthetic value and is a superior coldwater fishery habitat. A surface water of the state to be so categorized must have water quality, stream bed characteristics, and other attributes of habitat sufficient to protect and maintain a propagating coldwater fishery.

"intermittent stream"
means a stream or reach of a stream that flows only at certain times of the year, such as when it receives flow from springs, melting snow, or localized precipitation.

"interrupted stream"
means a stream that contains perennial reaches with intervening intermittent or ephemeral reaches.

"irrigation"
means a water of the state used as a supply of water for crops.

"limited warmwater fishery"
means a surface water of the state where intermittent flow may severely limit the ability of the reach to sustain a natural fish population on a continuous annual basis; or a surface water of the state where historical data indicate that water temperature may routinely exceed 32.2°C (90°F).

"livestock watering"
means a surface water of the state used as a supply of water for consumption by livestock.

“marginal coldwater fishery”
means a surface water of the state known to support a coldwater fish population during at least some portion of the year, even though historical data indicate that the maximum temperature in the surface water of the state may exceed 20°C (68°F).

“perennial stream”
means a stream or reach of a stream that flows continuously throughout the year in all years; its upper surface, generally, is lower than the water table of the region adjoining the stream.

“primary contact”
means any recreational or other water use in which there is prolonged and intimate contact with the water, such as swimming and water skiing, involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard. Primary contact also means any use of surface waters of the state for native American traditional cultural, religious, or ceremonial purposes in which there is intimate contact with the water that involves considerable risk sufficient to pose a significant health risk. The contact may include but is not limited to ingestion or immersion.

“secondary contact”
means any recreational or other water use in which contact with the water may occur and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, wading, commercial and recreational boating and any limited seasonal contact.

“surface water(s) of the state”
means all interstate waters including interstate wetlands, and all intrastate waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, reservoirs or natural ponds the use, degradation, or destruction of which would affect interstate or foreign commerce. Surface waters of the state also means all tributaries of such waters, including adjacent wetlands, and any manmade bodies of water which were originally created in surface waters of the state or resulted in the impoundment of surface waters of the state. Surface waters of the state does not include private waters that do not combine with other surface or subsurface water or any water under tribal regulatory jurisdiction pursuant to § 518 of the Clean Water Act. Waste treatment systems, including treatment ponds or lagoons designed to meet requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition), are not surface waters of the state, unless they were originally created in surface waters of the state or resulted in the impoundment of surface waters of the state.

“warmwater fishery”
means a surface water of the state where the water temperature and other characteristics are suitable for the support or propagation or both of warmwater fishes.

“wildlife habitat”
means a surface water of the state used by plants and animals not considered as pathogens, vectors for pathogens or intermediate hosts for pathogens for humans or domesticated livestock and plants.

APPLICABILITY OF WATER QUALITY STANDARDS

Livestock Watering and Wildlife Habitat Uses

(1) When a discharge creates a water which could be used by livestock and/or wildlife in a non-classified, otherwise ephemeral surface water of the state, such water shall be protected for the uses of livestock watering and/or wildlife habitat by the standards applicable to these uses as set forth in 20.6.4.900 NMAC.

(2) Designated uses of such water will be limited to livestock watering and/or wildlife habitat only when such a water does not enter a classified surface water of the state with criteria which are more restrictive than those necessary to protect livestock watering and/or wildlife habitat, except in direct response to precipitation or runoff. The commission shall adopt any additional designated uses for such surface waters of the state by rulemaking proceedings.

(3) When such a water, except in direct response to precipitation or runoff, enters a classified surface water of the state with criteria which are more restrictive than those necessary to protect livestock watering and/or wildlife habitat, the numeric standards established for the classified surface water of the state shall apply at the point such a water enters the classified surface water of the state. If discharge to such waters of the state ceases or is diverted elsewhere, all uses adopted under this section or subsequently under additional rulemaking proceedings for such waters of the state shall be deemed no longer designated, existing, or attainable.

GENERAL STANDARDS

General standards are established to sustain and protect existing or attainable uses of surface waters of the state. These general standards apply to all surface waters of the state at all times, unless a specified standard is provided elsewhere in this part. Surface waters of the state shall be free of any water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or unreasonably interfere with the public welfare or the use of property. When changes in dissolved oxygen, temperature, dissolved solids, sediment or turbidity in a water of the state is attributable to natural causes or the reasonable operation of irrigation and flood control facilities that are not subject to federal or state water pollution control permitting, numerical standards for temperature, dissolved solids content, dissolved oxygen, sediment or turbidity adopted under the Water Quality Act do not apply. The foregoing provision does not include major reconstruction of storage dams or diversion dams except for emergency actions necessary to protect health and safety of the public, or discharges from municipal separate storm sewers.

Bottom Deposits

Surface waters of the state shall be free of water contaminants from other than natural causes that will settle and damage or impair the normal growth, function, or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.

Floating Solids, Oil and Grease

Surface waters of the state shall be free of oils, scum, grease and other floating materials resulting from other than natural causes that would cause the formation of a visible sheen or visible deposits on the bottom or shoreline, or would damage or impair the normal growth, function or reproduction of human, animal, plant or aquatic life.

Color

Color-producing materials resulting from other than natural causes shall not create an aesthetically undesirable condition nor shall color impair the use of the water by desirable aquatic life presently common in surface waters of the state.

Odor and Taste of Fish

Water contaminants from other than natural causes shall be limited to concentrations that will not impart unpalatable flavor to fish, or result in offensive odor arising in a surface water of the state or otherwise interfere with the reasonable use of the water.

Plant Nutrients

Plant nutrients from other than natural causes shall not be present in concentrations which will produce undesirable aquatic life or result in a dominance of nuisance species in surface waters of the state.

Toxic Pollutants

Surface waters of the state shall be free of toxic pollutants attributable to discharges in amounts, concentrations or combinations which affect the propagation of fish or which are toxic to fish or other aquatic organisms; wildlife using aquatic environments for habitation or aquatic organisms for food; or to livestock or other animals; except that the use of a piscicide registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. Section 136 *et seq*., and under the New Mexico Pesticide Control Act (NMPCA), Section 76-4-1 *et seq*. NMSA 1978 (1973), shall not be a violation of Subsection F of this section when such use has been approved by the commission. Any person seeking commission approval of the use of a piscicide shall file a written petition with the commission. The petition shall contain, at a minimum, the following information: (1) petitioner's name and address; (2) identity of the piscicide; (3) documentation of registration under FIFRA and NMPCA; (4) target and potential non-target species, including threatened or endangered species; (5) potential environmental consequences and protocols for limiting such impacts; (6) affected surface water of the state; (7) results of pre-treatment survey; (8) evaluation of available alternatives and justification for selecting piscicide use; (9) post-treatment assessment monitoring protocol; and (10) any other information required by the commission. The commission shall review the petition and require a public hearing in the locality affected by the proposed use in accordance with Adjudicatory Procedures, 20.1.3 NMAC. In addition to the public notice requirements in Adjudicatory Procedures, 20.1.3 NMAC, the petitioner shall provide written notice to (1) local political subdivisions; (2) local water planning entities; (3) local conservancy and irrigation districts; and (4) local media outlets, except that the petitioner shall only be required to publish notice in a newspaper of circulation in the locality affected by the proposed use. After a public hearing, the commission may grant the petition in whole or in part, may grant the petition subject to conditions, or may deny the petition. In granting any petition in whole or part or subject to conditions, the commission shall require the petitioner to implement post-treatment assessment monitoring. Pursuant to this section, the chronic standard for the use to be protected shall be as set out in 20.6.4.900 NMAC. For a toxic pollutant not listed in 20.6.4.900 NMAC, the following provisions shall be applied in numeric order in accordance with 20.6.4.10, 20.6.4.11 and 20.6.4.13 NMAC.

(1) The chronic standard shall be the "criterion continuous concentration" published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act; or

(2) Using results of toxicological studies published in scientific journals, a geometric mean LC-50 value shall be calculated for the particular species, genus or group which is representative of the form of life to be preserved. The chronic standard for a toxic pollutant which does not bioaccumulate shall be 10 percent of the calculated geometric mean LC-50 value; or

(3) The chronic standard for a toxic pollutant which does bioaccumulate shall be the standard calculated under Paragraph (2) of this subsection adjusted by a bioaccumulation factor for the particular species, genus or group representative of the particular form of life to be preserved. When such definitive information has not been published, the chronic standard for a bioaccumulating toxic pollutant shall be one percent of the calculated geometric mean LC-50 value.

Radioactivity

The radioactivity of surface waters of the state shall be maintained at the lowest practical level and shall in no case exceed the standards set forth in the New Mexico Radiation Protection Regulations, 20.3.1.400 through 20.3.1.499 NMAC (5-3-95).

Pathogens

Surface waters of the state shall be virtually free of pathogens. In particular, surface waters of the state used for irrigation of table crops such as lettuce shall be virtually free of *Salmonella* and *Shigella* species.

Temperature

Maximum temperatures for each classified water of the state have been specified in 20.6.4.101 through 20.6.4.899 NMAC. However, the introduction of heat by other than natural causes shall not increase the temperature, as measured from above the point of introduction, by more than 2.7°C (5°F) in a stream, or more than 1.7°C (3°F) in a lake or reservoir. In no case will the introduction of heat be permitted when the maximum temperature specified for the reach (generally 20°C (68°F) for coldwater fisheries and 32.2°C (90°F) for warmwater fisheries) would thereby be exceeded. These temperature standards shall not apply to impoundments constructed offstream for the purpose of heat disposal. High water temperatures caused by unusually high ambient air temperatures are not violations of these standards.

Turbidity

Turbidity attributable to other than natural causes shall not reduce light transmission to the point that the normal growth, function, or reproduction of aquatic life is impaired or that will cause substantial visible contrast with the natural appearance of the water.

Salinity

Where existing information is sufficient, numerical standards for TDS (or conductivity), chlorides and sulfates, have been adopted in 20.6.4.101 through 20.6.4.899 NMAC. The following standards apply at the downstream point of the reach in which they are set:

(1) For the tributaries of the Colorado river system, the state of New Mexico will cooperate with the Colorado river basin states and the federal government to support and implement the salinity policy and program outlined in the report "1999 Review, water quality standards for salinity, Colorado river system."

(2) Numeric criteria for salinity are established at three points in the Colorado river basin as follows: below Hoover dam, 723 mg/L; below Parker dam, 747 mg/L; and at Imperial dam, 879 mg/L.

(3) As a part of the program, objectives for New Mexico shall include the elimination of discharges of water containing solids in solution as a result of the use of water to control or convey fly ash from coal-fired electric generators, wherever practicable.

(4) In determining compliance with the numeric criteria hereby adopted, salinity (TDS) shall be determined by either the "calculation method" (sum of constituents) or the filterable residue method. Approved test procedures for these determinations are as set forth in 20.6.4.13 NMAC.

Dissolved Gases

Surface waters of the state shall be free of nitrogen and other dissolved gases at levels above 110 percent saturation when this supersaturation is attributable to municipal, industrial or other discharges.

DRY CIMARRON RIVER BASIN

HUC 11040001 Cimarron Headwaters

Carrizozo Creek (Dry Cimarron River to headwaters)
WQS: 20.6.4.701 AU: NM-2701_40

Listed for chloride and removal of riparian habitat. Data are from one station (DCR701.000103) sampled in 1986. Chloride data indicate Full Support, Impacts Observed for the fishery use (1/3).

1998 ACTION: Chloride will be removed as a cause of non-support for this reach and will be listed on the 1998 305(b) report as Full Support, Impacts Observed for chloride. The reach will continue to be listed on the 1998 303(d) report with unknown as the cause of non-support.

2000 ACTION: None

2002 ACTION: The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. The reach will be listed as **Not Supporting for DO (6/8) and chronic aluminum (3/9).** The reach will be listed as **Full Support, Impacts Observed for chloride and temperature (1/8).**

2004 ACTION: Aluminum was incorrectly assessed for the last listing cycle. Since multi-day data were available, means were determined and compared to the chronic criterion. There were 1 of 3 exceedences using seasonal means. Therefore, **aluminum will be removed as a cause of non support**. Also, according to the survey lead, the DO measurements are not reliable because the only access point in this AU was a beaver bog. A healthy warmwater fishery was also present. Because of limited access and a naturally low DO condition due to the beaver bog, **dissolved oxygen will be removed as a cause of non support.**

Dry Cimarron River (Perennial reaches OK bnd to Oak Creek)
WQS: 20.6.4.701 AU: NM-2701_00

Previously listed under "Dry Cimarron River, perennial portions" and listed for temperature, pH, salinity (TDS), fecal coliform, total ammonia and stream bottom deposits. Temperature data indicated the fishery use was not supported at 3 of 4 stations (5/5, 4/4, and 5/5) while it was supported at only one station (0/5). Data for pH are similar and indicate full support (0/5) for the fishery use at one station (same station as temperature), while the use was not supported at the other stations (4/5, 2/5, 5/5). Total dissolved solids (salinity) data indicated that the fishery use was not supported at 2 stations (DCR701.000102, 5/5 and DCR701.000105, 5/5), while it was supported at 2

stations (0/5 and 0/5). Fecal coliform data indicated full support of the contact recreation use at two stations (DCR701.000105, 0/1 and DCR701.002010, 0/1) and Full Support, Impacts Observed at station DCR701.000102 (1/1). Total ammonia data indicated that the fishery use was partially supported at 3 stations (2/5,2/5, and 2/4), while it was full support at station DCR701.002010, 0/5. A biological assessment was conducted in 1990 by the NMED. The biological assessment found that the fishery use for station DCR701.002010 was not supported (40% of reference). Station DCR701.000110 was full support (90% of reference) and station DCR701.000102 was Full Support, Impacts Observed (75% of reference) for the fishery use.

1998 ACTION: Fecal coliform will be removed as a cause of non-support for this reach but will be listed on the 1998 305(b) list as Full Support, Impacts Observed. The reach will continue to be included on the 1998 303(d) list as not Supported for stations below DCR701.0002010 with temperature, TDS, pH, total ammonia and stream bottom deposits as the causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was defined by segmenting "Dry Cimarron River, perennial portions" into two assessment units. The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. The reach will be listed as **Not Supporting for TDS (10/45) and temperature** based on thermograph data and temperature assessment protocol (data indicate an exceedence of the segment specific criteria of 25 C for more than 6 consecutive hours). This reach will be **de-listed for pH (0/40), total ammonia (0/37), and stream bottom deposits (benthic and sediment sampling stations are reference sites).**

2004 ACTION: None. This AU should be listed as Category 5B because CWF is not an existing use and likely not an attainable use.

Dry Cimarron River (Oak Creek to headwaters)
WQS: 20.6.4.701 AU: NM-2701_01

Previously listed as "Dry Cimarron River, perennial portions" and listed for temperature, pH, salinity (TDS), fecal coliform, total ammonia and stream bottom deposits. Temperature data indicated the fishery use was not supported at 3 of 4 stations (5/5, 4/4, and 5/5) while it was supported at only one station (0/5). Data for pH are similar and indicate full support (0/5) for the fishery use at one station (same station as temperature), while the use was not supported at the other stations (4/5, 2/5, 5/5). Total dissolved solids (salinity) data indicated that the fishery use was not supported at 2 stations (DCR701.000102, 5/5 and DCR701.000105, 5/5), while it was supported at 2 stations (0/5 and 0/5). Fecal coliform data indicated full support of the contact recreation use at two stations (DCR701.000105, 0/1 and DCR701.002010, 0/1) and Full Support, Impacts Observed at station DCR701.000102 (1/1). Total ammonia data indicated that the fishery use was partially supported at 3 stations (2/5,2/5, and 2/4), while it was full support at station DCR701.002010, 0/5. A biological assessment was conducted in 1990 by the NMED. The biological assessment found that

the fishery use for station DCR701.002010 was not supported (40% of reference). Station DCR701.000110 was full support (90% of reference) and station DCR701.000102 was Full Support, Impacts Observed (75% of reference) for the fishery use.

1998 ACTION: Fecal coliform will be removed as a cause of non-support for this reach but will be listed on the 1998 305(b) list as Full Support, Impacts Observed. The reach will continue to be included on the 1998 303(d) list as not Supported for stations below DCR701.0002010 with temperature, TDS, pH, total ammonia and stream bottom deposits as the causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was defined by segmenting "Dry Cimarron River, perennial portions" into two assessment units. The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. This reach will be **de-listed for pH (1/8 at 8.87 which is within meter error range of 0.2), TDS (0/8), temperature (no exceedences of 25 C standard based on thermograph data), total ammonia (0/17), and stream bottom deposits (benthic data indicate 87% of reference and percent fines are lower than the reference).**

2004 ACTION: None

Long Canyon (Perennial portions abv Dry Cimarron)
WQS: 20.6.4.701 AU: NM-2701_20

Previously listed for temperature and total ammonia. Data are from one station (DCR701.000505) sampled in 1990. Temperature data indicated that the fishery use was not supported (2/4). Total ammonia data indicated that the use was supported (0/5).

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. The reach will continue to be listed on the 1998 303(d) list with temperature as the cause of non-support.

2000 ACTION: None

2002 ACTION: The Dry Cimarron watershed was intensively surveyed by SWQB in 2000. The reach will continue to be listed as **Not Supporting for temperature** based on thermograph data and temperature assessment protocol (data indicate an exceedence of the segment specific criteria of 25 C for more than 6 consecutive hours).

2004 ACTION: This AU should be listed as Category 5B because CWF is not an existing use and likely not an attainable use.

Oak Creek (Dry Cimarron River to headwaters)
WQS: 20.6.4.701 AU: NM-2701_10

Listed for temperature, total ammonia, pH, and Removal of Riparian Habitat. There are two stations with data from 1990. Station DCR701.001501 indicated full support of the fishery use for all parameters (0/5). Station DCR701.001507 indicated Full Support, Impacts Observed for all three parameters (1/1). This station was also the reference site for a 1990 biological survey, which indicates full support for the fishery use.

1998 ACTION: The chemical and biological data supports upgrading this reach to full support. However the reach will continue to be listed as Partially Supporting with unknown as the cause on non-support.

2000 ACTION: None

2002 ACTION: The Dry Cimmarron watershed was intensively surveyed by SWQB in 2000. The reach will be **de- listed for cause Unknown** because survey data indicates Full Support for known contaminants.

2004 ACTION: None

CANADIAN RIVER BASIN

HUC 11080001 Canadian Headwaters

Caliente Canyon (Vermejo River to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_151

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 2 of 2 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, specific conductance will be added as a cause of non support.** This AU will be placed in Category 5B because it probably is incorrectly classified as a HQCWF due to low flows and high base temperatures.

Canadian River (Cimarron River to CO border)
WQS: 20.6.4.305 AU: NM-2305.A_200

Previously listed for stream bottom deposits and fecal coliform. There are five sampling stations on this reach. All data are from 1988 and 1993 surveys. Fecal coliform data indicate full support at station CRB306.019020 (0/1), and Full Support, Impacts Observed at station CRB306.019010 (1/3). There are no data to support the listing of stream bottom deposits for this LWWF.

1998 ACTION: This reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list with fecal coliform as the cause. The reach has been dropped from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Chicorica Creek (Canadian River to Raton Creek)
WQS: 20.6.4.305 AU: NM-2305.A_250

Previously listed for, fecal coliform, plant nutrients, and stream bottom deposits. There is one sampling station on this reach. All data are from 1989 and 1993 surveys. There is supporting data for the fecal coliform listing (1/1) as Full Support, Impacts Observed and also for the plant nutrients listing. There are no data to support the listing of stream bottom deposits.

1998 ACTION: The reach continues to be listed on the 1998 303(d) list as Partially

Supporting for plant nutrients. The reach will be included in the 1998 305(b) report as Full Support, Impacts Observed for fecal coliform.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Hunter Creek (Throttle Reservoir to headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_40

Previously listed for fecal coliform. There is one sampling station on this reach. There is one data point (600/100ml) from 1989 that indicate Full Support, Impacts Observed.

1998 ACTION: The reach was removed from the 303(d) list and will be added to the 305(b) list as Full Support, Impacts Observed.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Lake Maloya
WQS: 20.6.4.305 AU: NM-2305.B_20

1998 ACTION: This lake is listed because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Raton Creek (Chicorica Creek to the headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_253

Previously listed for metals (Cu), total ammonia and plant nutrients. There are two sampling stations on this reach. All data are from 1989, 1991, 1993, and 1995 surveys. The data ratios for dissolved copper are 0/3,03/ and 0/1 within the last 12 years. Data ratios for total ammonia within the last 12 years are 0/5,0/5, and 02. There are supporting data to justify supporting or

removing the plant nutrients listing.

1998 ACTION: Copper and total ammonia will be removed as causes of non-support for this reach. This reach will continue to be listed on the 1998 303(d) list with plant nutrients as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Stubblefield Lake
WQS: unclassified AU: NM-9000.A_017

1998 ACTION: This lake is listed because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Una de Gato Creek (Chicorica Creek to HWY 64)
WQS: 20.6.4.305 AU: NM-2305.A_254

Previously listed for fecal coliform and stream bottom deposits. There are three sampling stations on this reach. All data are from a 1989 survey. Fecal coliform ratios are 1/1, 0/1, and 0/2. There are no data to support the listing of stream bottom deposits on this LWWF.

1998 ACTION: Fecal coliform and stream bottom deposits will be removed as causes of non-support on the 303(d) list. The reach has therefore been dropped from the 1998 303(d) list. The reach will be listed as Full Support, Impacts Observed for fecal coliform at one station.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

VanBremmer Creek (HWY 64 to headwaters)

WQS: 20.6.4.309 AU: NM-2306.A_140

2004 ACTION: This was a secondary site during the 2002 Canadian part I survey (sampled 3 times). There were 1 of 2 exceedences of the turbidity criterion of 25 NTU, 2 of 4 exceedences of the temperature criterion of 20 degrees C, and 3 of 3 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, turbidity, temperature, and specific conductance will be added as causes of non support**. This AU will be listed as Cateogry 5B -- This trib to the Vermejo R probably does not belong in WQS 20.6.4.309 (should be CWF, not HQCWF); WQS 20.6.4.305 incl the Vermejo, but does not specify tribs and would not be protective of resident CWF. Vermejo Park has fisheries data. Also, additional data is needed (thermograph, sonde, bugs).

Vermejo River (Canadian River to Rail Canyon)
WQS: 20.6.4.305 AU: NM-2305.A_210

Previously listed for metals (Se). There are four sampling stations on this reach. All data are from 1988, 1989 and 1993 surveys. Selenium data indicate full support (0/2).

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. The station at I-25 was sampled five times. The flow was <10 cfs, so the TDS criterion did not apply. This reach went dry during late summer and fall. Both drought and diversion contributed to the dry condition of Vermejo River. At Dawson, water is diverted to the Maxwell Wildlife Refuge and to Stubblefield Lake. During parts of 2002 the entire flow of the Vermejo appeared to be diverted. This AU will be listed as Category 4C – Impairment (low and no flow) due to diversion.

Vermejo River (Rail Canyon to York Canyon)
WQS: 20.6.4.305 AU: NM-2305.A_220

Previously listed for stream bottom deposits. There are two sampling stations on this reach. All data are from a 1989 survey. There are supporting data for adding total phosphorus at station CRB306.014020 as Full Support, Impacts Observed.

1998 ACTION: The reach continues to be listed on the 1998 303(d) list as Partially Supporting for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: A 1999 fall survey was conducted to determine the validity of this listing. An embeddedness of 39%, a percent fines of 25%, width/depth ratio was 31.6 and an entrenchment ratio of 3.5 rates the stream bottom as fully supporting for aquatic life.

Water quality standards, as assessed using the 1998 Assessment Protocol are currently being met for stream bottom deposits on this reach.

2002 ACTION: None

2004 ACTION: None

York Canyon (Vermejo River to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_153

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 2 of 7 exceedences of the turbidity criterion of 25 NTU, 7 of 7 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, turbidity and specific conductance were listed as causes of non support.** There was 1 of 7 exceedences of total mercury detected. There is an inactive coal mine with processing and rail facilities in the watershed. Reclamation is in progress. This may be moved to Category 4B if it is determined that the reclamation is directed at reducing the impairments.

HUC 11080002 Cimarron

Cieneguilla Creek (Eagle Nest Lake to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_065

Previously listed for turbidity, fecal coliform, stream bottom deposits and plant nutrients. There are five sampling stations on this reach. All data are from 1992 and 1993 surveys. Turbidity ratios are 0/6,2/10,3/9,3/9, and 3/8. Fecal coliform ratios are 1/3,1/3,0/3,1/3, and 1/6. A biological assessment was performed on Cieneguilla Creek in 1993. Five biological stations were surveyed on this stream. The upper most station (CC1) was used as the reference site for this survey. Another station above the WWTP (CC3) was also FS (87%). A station located at the WWTP and near a horse corral was NS (54%). The station immediately down stream from the WWTP was FS (80%). The most down stream station (CC5) was only PS (61%). This is attributed to the accumulation of impacts from the upper watershed.

1998 ACTION: Fecal coliform will be listed on the 1998 305(b) report as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as

Not Supported for turbidity, stream bottom deposits, and plant nutrients.

2000 ACTION:

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Cieneguilla Creek in October of 1998. The Hilsenhoff Biotic Index (HBI), which is used as an indicator of nutrient enrichment, showed calculated values of 3.93 and 3.94 respectively. These numbers fall in the HBI range of 3.51-4.50 meaning water quality is very good with possible to slight organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on Cieneguilla Creek.

Stream Bottom Deposits: This stream is characterized by two stations. The upper station is Cieneguilla Creek below Crooked Creek. This upper station is a Rosgen E5 stream type with a % fines <2mm of 66% indicating a high level of impairment. The lower station is Cieneguilla Creek at the USGS Gage. This lower station is a Rosgen F5 stream type with a % fines <2mm of 64% also indicating a high level of impairment.

A TMDL was developed for Cieneguilla Creek to address stream bottom deposits.

Turbidity: Four sampling stations on this reach have 1998-1999 exceedence ratios of 7/10, 3/8, 4/7 and 2/10 respectively.

A TMDL was developed for Cieneguilla Creek to address turbidity.

Fecal Coliform: Confirmation samples for fecal coliform were taken in 1998 and 1999.

The summer sample taken at Angel Fire Road 110fcu/100ml on this reach.

A TMDL was developed for Cieneguilla Creek to address fecal coliform.

Metals (Al chronic): The 4-day chronic sampling that was conducted during the spring had an average concentration of 292ug/l. There were no exceedences of the acute criterion.

Aluminum (chronic) will be added as a cause of non-support

Metals (Pb acute): The 4-day average for lead was below the chronic criterion but one sample was higher than the acute criterion.

Add to the 305(b) Report as FSIO.

Temperature: One thermograph was deployed on this reach. The thermograph was deployed where Crooked Creek turns into Cieneguilla Creek. The thermograph exceeded the HQCWF criterion 110/3,884 times with a maximum temperature of 22.46°C. This site exceeded the draft Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: This reach will be **de-listed for temperature** based on a re-evaluation of the thermograph data collected in 1999. The temperature protocol states that "instantaneous (hourly) temperature do not exceed 23°C and temperatures do not exceed 20°C for more than four hours in a 24-hour cycle and for no more than three consecutive days." The maximum temperature was 22.46°C. However, temperatures did exceed 20°C for no more five consecutive hours, but not on consecutive days. These temperatures ranged from 20.71°C to 22.04°C. SWQB also used the SSTEMP model to determine whether temperature exceedences were likely. The model predicted that there should be no temperature violations in this reach. The macroinvertebrate community is healthy and comprised of moderate numbers of pollution sensitive taxa. A TMDL was developed for chronic Al.

2004 Action: TMDLs for fecal coliform, chronic Al, and turbidity were revised in order to add wasteload allocations for the Village of Angel Fire WWTP discharge into Cieneguilla Creek. Muncipal Point Source was added as a Probable Source of pollution to the 303(d) list for these parameters.

Cimarron River (Canadian River to Cimarron)
WQS: 20.6.4.306 AU: NM-2305.1.A_10

Previously listed as "Cimarron River from the Canadian River to Turkey Creek" and listed for turbidity, plant nutrients and stream bottom deposits. There are three sampling stations on this reach. All data is from 1988 and 1989 surveys. There is no turbidity standard for a warmwater fishery. There are supporting data to justify the plant nutrients listing but not the stream bottom deposits listing.

1998 ACTION: Stream bottom deposits will be removed as a cause of non-support for this reach. This reach will continue to be included on the 1998 303(d) list with plant nutrients as a cause.

2000 ACTION: Plant nutrients will remain listed as a cause of non-support.

Metals (Al Chronic): The 4-day average from the spring sampling for this site was 162ug/l. Results of four other samples collected in the summer and fall were all less than detect.

Aluminum (chronic) will be added as a cause of non-support. A TMDL was written for this reach (under the original reach name) in 1999.

2002 ACTION: The original listed reach was split into two assessment units because it spanned two different water quality standard segments. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **Plant nutrients were removed as a cause of non-support. A de-list letter was prepared (under the original reach name).**

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. The 1998 survey data used to determine aluminum impairment was re-assessed in light of the split. The assessment was done incorrectly for both the upper and lower portion. Aluminum was sampled at the USGS gage in Springer. There was one exceedence of the chronic criterion of 0.087 mg/L during the spring run. The seasonal mean was 0.045 mg/L. Therefore, there were no exceedences of the chronic criteria using seasonal means. **Therefore, chronic aluminum will be removed as a cause of non support.**

Cimarron River (Cimarron to Turkey Creek)
WQS: 20.6.4.309 AU: NM-2306.A_040

Previously listed as "Cimarron River from the Canadian River to Turkey Creek" and listed for turbidity, plant nutrients and stream bottom deposits. There are three sampling stations on this reach. All data is from 1988 and 1989 surveys. There is no turbidity standard for a warmwater

fishery. There are supporting data to justify the plant nutrients listing but not the stream bottom deposits listing.

1998 ACTION: Stream bottom deposits will be removed as a cause of non-support for this reach. This reach will continue to be included on the 1998 303(d) list with plant nutrients as a cause.

2000 ACTION: Plant nutrients will remain listed as a cause of non-support.

Metals (Al Chronic): The 4-day average from the spring sampling for this site was 162ug/l. Results of four other samples collected in the summer and fall were all less than detect.

Aluminum (chronic) will be added as a cause of non-support. A TMDL was written for this reach (under the original reach name) in 1999.

2002 ACTION: The original listed reach was split into two assessment units because it spanned two different water quality standard segments. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **Plant nutrients were removed as a cause of non-support. A de-list letter was prepared (under the original reach name).**

2004 ACTION: The 1998 survey data used to determine aluminum impairment was re-assessed in light of the split. The assessment was done incorrectly for both the upper and lower portion. Aluminum was sampled at the station above the town of Cimarron. There were four exceedences of the chronic criterion of 0.087 mg/L during the spring run. The seasonal mean was 0.1625 mg/L. Therefore, there was one exceedence of the chronic criteria using seasonal means which should have lead to a conclusion of FSIO. **Therefore, chronic aluminum will be removed as a cause of non support.**

Cimarron River (Turkey Creek to Eagle Nest Dam)
WQS: 20.6.4.309 AU: NM-2306.A_130

Previously listed for total phosphorus. This listing is supported at station 11550 with ratios of 4/15 within 10 years. The ratio at station 11505 is 1/16.

1998 ACTION: This reach is included in the 1998 303(d) list as Not Supported for total phosphorus at the upper station only.

2000 ACTION:

Total Phosphorus: Two stations were sampled on this reach. The TP ratios were 0/4 and 0/11.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol indicated no impairment due to nutrient loading on this reach. A de-list letter was written for total phosphorus.

2002 ACTION: None. Corrected 303(d) list with above 2000 comments on nutrients.

2004 ACTION: None

Eagle Nest Lake
WQS: 20.6.4.309 AU: NM-2306.B_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

McCrystal Creek (North Ponil Creek to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_112

2000 ACTION:

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above McCrystal Creek Campground. The thermograph exceeded the HQCWF criterion 57/4,853 times with a maximum temperature of 22.48°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: None

2004 ACTION: None

Middle Ponil Creek (South Ponil Creek to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_121

Previously listed for total phosphorus and stream bottom deposits. There are two sampling stations on this reach. All data is from a 1989 survey. There are supporting data for a total phosphorus listing at station CRB306.011065 (3/5) but not for station CRB306.011050 (0/5).

1998 ACTION: This reach is included in the 1998 303(d) list as Not Supported for total phosphorus at the upper station only.

2000 ACTION:

Total Phosphorus: The ratio of exceedences for the two stations on this reach was 0/4 and 0/5.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loadings to this reach.

Stream Bottom Deposits: Two stations characterize this reach. The upper site above FR 1950 is a B3 type stream with low % fines (16) and a moderate embeddedness of 48%. Embeddedness greater than 40% on a B-type stream is considered degraded. The lower station is a B4 type stream with a % fines value of 46 and an embeddedness value of 55%.

Stream bottom deposits will be retained as a cause of non-support

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above the confluence with South Ponil Creek. The thermograph exceeded the HQCWF criterion 170/1,630 times with a maximum temperature of 25.5°C. This site exceeded the Temperature Protocol for a one-time maximum temperature (23°C).

Temperature will be added as a cause of non-support for this reach

Turbidity: The exceedence ratio for turbidity on this reach at the two stations was 2/8 and 2/8.

Turbidity will be added to the reach as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios for TOC on this reach were 1/4 at the lower site above Ponil Camp and 0/4 at the upper site.

Added to the 305(b) Report as FSIO.

2002 ACTION: There is no longer a total phosphorus standard for this reach. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **A de-list letter was prepared for total phosphorus. TMDLs were written for turbidity and temperature.**

In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of FSIO.**

2004 ACTION: None

Moreno Creek (Eagle Nest Lake to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_060

Previously listed for fecal coliform and plant nutrients. There is one sampling station on this reach. All data are from 1992 and 1993 surveys. There are supporting data for fecal coliform with a ratio of 2/3. A biological assessment was conducted on Moreno Creek in 1993. The assessment of one station on Moreno Creek was Full Support, Impacts Observed (70%). The degradation at his site was attributed to poor habitat (58%).

1998 ACTION: This reach is on the 1998 303(d) list as Partially Supported for fecal coliform and plant nutrients.

2000 ACTION:

Fecal Coliform: Confirmation samples for fecal coliform were taken in 1998 and 1999. One of the summer samples taken on Moreno

Creek was 220fcu/100ml on this reach.

A TMDL was developed for Moreno Creek to address fecal coliform.

Turbidity: One sampling station on this reach has a 1998-1999 exceedence ratio of 4/10.

A TMDL was developed for Moreno Creek to address turbidity.

Plant Nutrients: Field assessments were conducted in November of 1999 using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any the three season study (May, July and October, 1998) sampling season. There was a biological assessment conducted on Moreno Creek in October of 1993. The macroinvertebrate community at he reference site appeared to be healthy and comprised of moderate numbers of pollution sensitive taxa.

Slightly impaired biological conditions were present at Moreno Creek, which were most likely the result of poor habitat conditions. The biological condition of Moreno Creek is rated as being 70% of the reference conditions, which according to the 1998 Assessment Protocol rates this stream as full support, impacts observed. Although the HBI index was high, overall macroinvertebrate numbers, taxa and several other metrics show acceptable values. The EPT Index for the reference site was 13, while Moreno Creek was rated a 10. The macroinvertebrate community as a whole is acceptable, although there is a shift in the community to midges, which is reflected in the full support, impacts observed statement.

2002 ACTION: None

2004 ACTION: None

North Ponil Creek (South Ponil Creek to M^{c}Crystal Creek)
WQS: 20.6.4.309 AU: NM-2306.A_110

Previously listed for temperature, fecal coliform and stream bottom deposits. There are two sampling stations on this reach. All data are from a 1989 survey. Temperature data are not supporting for station CRB306.011045 (4/5) and Full Support, Impacts Observed for station CRB306.011060 (1/5). Fecal coliform data are 0/1 and 1/1. Total phosphorus was 0/6 at the lower station and 1/6 at the upper station.

1998 ACTION: This reach will be listed on the 1998 305(b) report as Full Support, Impacts Observed for fecal coliform, temperature, and total phosphorus at the upper station. The reach is listed as Not Supported on the 1998 303(d) list with temperature and stream bottom deposits as the cause.

2000 ACTION:

Temperature: Thermographs on this reach were deployed from July 17 through September 23, 1998. HQCWF temperature criteria were exceeded at the two thermograph sites. The upper site exceedence ratio was 44/1,631. This site exceeded the draft Temperature Protocol for hours of exceedence duration > 6 hours. The lower site had an exceedence ratio of 339/1,632 with a one-time maximum temperature exceedence of 28°C.

A TMDL was developed for the North Ponil Creek to address temperature.

Turbidity: Two sampling stations on this reach have a 1998-1999 exceedence ratio of 7/10 and 6/10 respectively.

A TMDL was developed for North Ponil Creek to address turbidity.

Stream Bottom Deposits: There are two stations on this reach that were used to characterize North Ponil Creek. The upper reach of North Ponil Creek at FR 1950 is a Rosgen E5 stream type with a % fines <2mm of 79.9% indicating a high level of impairment.

The lower reach of North Ponil Creek above Ponil Creek is a Rosgen E4 stream type with a % fines <2mm of 29% indicating a moderate level of impairment.

A TMDL was developed for North Ponil Creek to address stream bottom deposits.

Total Phosphorus: Two sampling station was established on this reach. Monitoring at the stations documented 3/13 exceedences for total phosphorus.

A TMDL was developed for North Ponil Creek to address total phosphorus.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO).

Add to the 305(b) Report as FSIO.

2002 ACTION: This assessment unit will be **de-listed for total phosphorus**. There is no longer a total phosphorus standard for this reach. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record.

2004 ACTION: None

Ponil Creek (Cimarron River to the confl North Ponil & South Ponil)
WQS: 20.6.4.309 AU: NM-2306.A_100

Previously listed for temperature, conductivity, turbidity, fecal coliform and total phosphorus. This segment will be evaluated in the 1998 surveys for use attainment. Data is available from three stations two NMED and one USGS. One NMED station is at the USGS station so these values will be summed. Data ratios for temperature are erratic. At the lower station ratios are 0/5 and at the two higher stations the ratio is 3/16 within the last 5 years and 7/32 for data 5-10 years old. For conductivity the ratios are 5/5 at the lower station and 0/52 at the upper station. Turbidity is available from one survey that took place after a rain event. Ratios at the lower station are 5/5 and 0/5 at the higher station. Fecal coliform is 0/2 at the upper stations and 1/1 at the lower station. Total phosphorus values are similar with 0/5 exceedences at the upper stations and 5/5 at the lower station.

1998 ACTION: This reach will continue to be listed as Not Supported on the 1998 303(d) list with temperature, conductivity, turbidity, fecal coliform, and total phosphorus.

2000 ACTION:

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above the USGS gage. The thermograph exceeded the HQCWF criterion 342/1,632 times with a maximum temperature of 28°C. This site exceeded the Temperature Protocol for a one-time maximum temperature (23°C).

Temperature will be retained as a cause of non-support for this reach

Conductivity: Two stations were used to assess this reach. One is at Hwy 58 below the Town of Cimarron and the second is above the town. Conductivity at the upper station was 0/8 (Standards Segment 20.6.4.309). At the lower station the exceedence ratio was 4/8. There is no criterion for this Standard Segment 20.6.4.307. This segment is thought to be mis-classified as a HQCWF and a UAA is recommended.

Conductivity will be removed as a cause of non-support for this reach

Turbidity: The exceedence ratio for turbidity at the upper station on this reach was 6/8. There are no criteria for the lower Segment 20.6.4.307.

Turbidity will be retained as a cause of non-support for the upper station

Total Phosphorus: The exceedence ratio for total phosphorus at the upper station was 0/5. There are no criteria for total phosphorus at the lower station.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol indicates no impairment due to nutrient loading on this reach.

Fecal Coliform: The exceedence ratio for fecal coliform at the upper station on this reach was 0/2 while it was 1/2 at the lower station below the WWTP.

Add to the 305(b) Report as FSIO.

Stream Bottom Deposits: One site was at the USGS gage was used to characterize this reach. The embeddedness value for this reach was 55% indicating an impaired stream bottom habitat.

Stream bottom deposits will be added to this reach as a cause of non-support

Metals (Al chronic): One sampling station, Ponil Creek at the Gage had an exceedence ratio of 6/9 for dissolved aluminum.

Metals (al chronic) will be added to this reach as a cause of non-support

2002 ACTION: None. TMDLs were written for turbidity, temperature, stream bottom deposits, and chronic aluminum.

2004 ACTION: None

Rayado Creek (Cimarron River to Miami Lake Diversion)
WQS: 20.6.4.307 AU: NM-2305.3.A_80

Previously listed for stream bottom deposits and fecal coliform. There is only one sample station on this reach. There is only one data point in the STORET database for fecal coliform. This value is less than the fecal coliform criteria for this segment.

1998 ACTION: Fecal coliform will be removed as a cause of non-support for this reach. This reach will continue to be listed on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION:

Stream Bottom Deposits: Stream bottom deposits will be retained as a cause of non-support.

2002 ACTION: None. A TMDL was developed for stream bottom deposits.

2004 ACTION: None

Sixmile Creek (Eagle Nest Lake to the headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_064

Previously listed for fecal coliform and plant nutrients. There is one sampling station on this reach. All data are from 1992 and 1993 surveys. Fecal coliform data indicate Full Support, Impacts Observed for the contact recreation use (1/3). A biological assessment conducted by NMED in 1990 indicates full support of the fishery use. The biological assessment was 83% of the reference site. There are no indications of plant nutrient enrichment on this reach.

1998 ACTION: The reach will be included on the 305(b) list as Full Support, Impacts Observed for fecal coliform. The reach has been removed from the 1998 303(d) list.

2000 ACTION:

Fecal Coliform: Confirmation samples for fecal coliform were taken in 1998 and 1999. The summer samples taken on Six-Mile Creek were 720fcu/100ml and 200fcu/100ml on this reach.

A TMDL was developed for Six-Mile Creek to address fecal coliform.

Turbidity: One sampling station on this reach has a 1998-1999 exceedence ratio of 5/10.

A TMDL was developed for Six-Mile Creek to address turbidity.

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Six-Mile Creek in October of 1993. The Hilsenhoff Biotic Index (HBI), which is used as an indicator of nutrient enrichment, showed a calculated value of 5.20. This number falls in the HBI range of 4.51-5.50 meaning water quality is good with some organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on Six-Mile Creek.

2002 ACTION: None

2004 ACTION: None

Springer Lake
WQS: 20.6.4.306 AU: NM-2305.1.B_10

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Ute Creek (Cimarron River to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_068

Previously listed for turbidity, total phosphorus and total organic carbon. There is one sampling station on this reach. All data are from a 1989 survey. Turbidity ratios are 2/5.
Total phosphorus ratios are 2/5 and Total organic carbon ratios are 1/1.

1998 ACTION: Total organic carbon will be removed as a cause of non-support on the 1998 303(d) list and will be listed on the 1998 305(b) list as Full Support, Impacts Observed. This reach will continue to be listed on the 303(d) list as Partially Supporting for turbidity and total phosphorus.

2000 ACTION:

Turbidity: The ratio of exceedences for turbidity on this reach was 0/8.

Water quality standards, as assessed using the 1998 Assessment Protocol are currently being met for turbidity on Ute Creek.

Total Phosphorus: The ratio of exceedences for TP on this reach was 0/7.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol indicated no impairment due to nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: None

HUC 11080003 Upper Canadian

Canadian River (Conchas River to the Mora River)
WQS: 20.6.4.305 AU: NM-2305.A_000

Previously listed for plant nutrients and stream bottom deposits. There are two sampling stations on this reach. The fishery use is a LWWF and accordingly the stream bottom deposits listing has been dropped. Data was reviewed to assess the plant nutrients listing and it has been determined that this listing is not supported. There are several reports on this segment of the river that do not include any indications of nutrient enrichment. Chemical parameters of nitrogen, phosphorus, and DO are within watershed norms.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Canadian River (Mora River to Cimarron River)
WQS: 20.6.4.305 AU: NM-2305.A_100

Previously listed for plant nutrients and stream bottom deposits. There are two sampling stations on this reach. The fishery use is a LWWF and accordingly the stream bottom deposits listing has been dropped. Data was reviewed to assess the plant nutrients listing and it has been determined that this listing is not supported. There are several reports on this segment of the river that do not include any indications of nutrient enrichment. Chemical parameters of nitrogen, phosphorus, and DO are within watershed norms.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Charette Lake (Lower)
WQS: 20.6.4.308 AU: NM-2305.5_10

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Conchas Reservoir
WQS: 20.6.4.304 AU: NM-2304_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: Conchas Reservoir was characterized (in a report titled, ***New Mexico Clean Lakes Program: Lake Water Quality Assessment for FY 89)*** as oligo-mesotrophic based on the Carlson index for chlorophyll a and total phosphorus concentrations. Total nitrogen to total phosphorus ratios indicate phosphorus is the limiting nutrient for algal growth.

Phytoplankton density ranged from 57 to 156 cells per ml. The Shannon-Wiener diversity indices listed in the BIOS data tables indicate the algal diversity to be good to excellent (i.e., greater than 2.0). Thermal stratification and dissolved oxygen depletion in the bottom third of the water column (i.e., 3.0 mg/l) was observed during August at the dam and Ute Creek outlet stations. Conversely, the Horseshoe station was well mixed and oxygenated throughout the year. Water quality standards were attained.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for nutrients and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

Manueles Creek (Ocate Creek to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_090

Previously listed for reduction of riparian vegetation and streambank destabilization.

1998 ACTION: This reach will continue to be listed as Partially Supported on the 1998 303(d) list with unknown as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were no exceedences of water quality standards for any dissolved metals, total metals, fecal coliform, or field parameters. A thermograph was deployed and recorded no exceedences of the temperature criterion. **Therefore, unknown will be removed as a cause of non support.**

Ocate Creek (Ocate to Wheaton Creek)
WQS: 20.6.4.309 AU: NM-2306.A_070

Previously listed for reduction of riparian vegetation and streambank destabilization.

1998 ACTION: This reach will continue to be listed as Partially Supported on the 1998 303(d) list with unknown as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. The site was dry in early fall and summer due to drought and diversion. The site was sampled five times for dissolved metals, nutrients, ions, field parameters, ions, Hg, and Se. There were no exceedences of the standards. **Therefore, unknown will be removed as a cause of non support.** This AU will be listed as Category 4C because diversion (flow modification) "pollution" is de-watering the channel.

HUC 11080004 Mora

Coyote Creek (Mora River to Black Lake)
WQS: 20.6.4.309 AU: NM-2306.A_020

New listing for turbidity, total phosphorus, fecal coliform, total ammonia, and stream bottom deposits. There are four sampling stations on this reach. All data are from 1986, 1992 and 1993 surveys. Data ratios for turbidity are 0/6, 0/6, 0/6, and 0/1. Total phosphorus ratios are 1/6, 0/6, 1/6, and 0/1. Fecal coliform data indicate Full Support, Impacts Observed 1/1(230 /100 ml) in 1986. Total ammonia ratios are 0/4, 0/4, and 0/4.

1998 ACTION: Turbidity and total ammonia will be removed as causes of non-support for this reach. Total phosphorus will be removed as a cause of non-support but will be listed on the 1998 305(b) list as Full Support, Impacts Observed for this parameter and fecal coliform. This reach will continue to be listed as Not Supported on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 8 of 19 exceedences (42%) of the specific conductance criterion (all at the station one mile above the Mora River at Thal Ranch), likely exacerbated by dry conditions during the survey. A thermograph deployed at Coyote Creek @ State Park recorded 7 days where the temperature exceeded the criterion of 20 degree C for more than 6 consecutive hours. **Therefore, temperature and specific conductance will be added as causes of non support.** This AU will be placed in Category 5B because there is a healthy trout fishery in this reach, so the conductivity criterion does not seem appropriate. Benthic scores were 93% of reference and percent fines were actually lower than the reference station (7 vs. 11). **Therefore, SBD will be removed as a cause of non support.**

Little Coyote Creek (Black Lake to headwaters)

WQS: 20.6.4.309 AU: NM-2306.A_024

New listing for metals (Al), turbidity and stream bottom deposits. There are four sampling stations on this reach. All data are from a 1991 survey. No dissolved aluminum data was collected. Turbidity remains for all stations with the exception of CRB306.005078. Temperature is added to the list for all but station CRB306.00507. This is a partially supporting listing. Total phosphorus is also added to the list for all stations. This is a not supporting listing.

1998 ACTION: Aluminum was removed as a cause of non-support. Turbidity and stream bottom deposits were retained and phosphorus and temperature were added as causes of non-support.

2000 ACTION: Total phosphorus will be removed from the list.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There was major road construction during the 1991 survey that contributed to turbidity and other impairments. The area around the construction has since been re-vegetated. There were 0 of 9 exceedences of the turbidity criterion of 25 NTU. **Therefore, turbidity will be removed as a cause of non support.** There were 2 of 8 exceedences (25%) of the pH criterion. A sonde deployed above HWY recorded an overall 30% exceedence rate. A thermograph deployed at State Park recorded 7 days where the temperature exceeded the criterion of 20 degree C for more than 6 consecutive hours. **Therefore, temperature and pH will be added as a cause of non support.** This AU will be placed in Category 5B because sonde data indicates FS for pH using draft protocol while grab data indicates NS. Also, thermograph was placed d/s of diversion. Benthic macroinvertebrates and pebble counts were collected @ HWY 434 and compared to Rio de las Casas. The biological score was 83% and there were 33% fines at the station compared to 11% at the reference. This AU is full support for SBD/sedimentation according to the Stream Bottom Deposit Assessment Protocol and best professional judgment (since the bio score was between 70-83%). Therefore, **SBD/sedimentation was removed as a cause of non support.**

The nutrient assessment protocol was performed on 07/11/02 at the site at HWY 434. Total nitrogen values were above the ecoregion criteria of 0.3 mg/L in >15% of the samples, total phosphorus values were above the ecoregion criteria of 0.03 mg/L in >15% of the samples the percent DO saturation was greater than 110%, and the pH was greater than 9.0 for > 2 hours. Since three or more indicators were present at both sites, **nutrients**

will be added as a cause of non support.

Manuelitas Creek (Sapello River to the headwaters)
WQS: 20.6.4.307 AU: NM-2305.3.A_21

Listed for turbidity and stream bottom deposits. Turbidity values at two stations were 1/5 and 4/5. This data is misleading in that the sampling took place during a runoff event from a rain. For example at the lower station values were above criteria until the last day when the flows subsided and were then within the reach criteria. A biological assessment conducted by NMED in 1990 indicates full support of the fishery use. The biological assessment was 90% of the reference site. It is the opinion of the biologist conducting this assessment that stream bottom deposits do not impact this reach. The high quality biology at this site indicates that the temporary turbidity exceedences are not impairing the reach.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

Mora River (Canadian River to USGS gage east of Shoemaker)
WQS: 20.6.4.305 AU: NM-2305.A_020

Previously listed for metals chronic (Pb), total ammonia and fecal coliform. There is only one sample station on this reach. All data are from a 1986 survey. Total ammonia had an acute exceedence ratio of 0/5 and a chronic exceedence ratio of 1/5. There are no dissolved lead data in STORET therefore there is insufficient data to modify the listing. Fecal coliform data is limited to 1/1 data (440/100 ml).

1998 ACTION: This reach will be listed on the 1998 303(d) list with lead (chronic) as the cause of non-support. The reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list with fecal coliform and chronic total ammonia as a cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. There were 0 of 8 exceedences of the hardness dependent chronic lead criterion. **Therefore, lead will be removed as a cause of non support.** There were 2 of 9 dissolved oxygen measurements lower than the 5.0 mg/L criterion. **Therefore, dissoloved oxygen will be added as a cause of non support**. This AU will be categorized as 5C -- A sonde will be deployed to verify the DO listing.

Mora River (USGS gage east of Shoemaker to HWY 434)
WQS: 20.6.4.307 AU: NM-2305.3.A_00

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. Sondes were deployed at the stations Mora River above WWTP and below WWTP. The sondes were only deployed for 3 days, so the 7 day minimum could not be determined. The sonde data applied to percentages indicated impairment while grab data did not. **Therefore, dissolved oxygen will be added as a cause of non support.** This AU will be listed as Category 5C because sonde data indicates impairment while grab data does not.

Mora River (HWY 434 to headwaters)
WQS: 20.6.4.309 AU: NM-2306.A_000

Previously listed for total phosphorus, fecal coliform, turbidity, and stream bottom deposits. There are two sampling stations on this reach. All data is from a 1986 survey. Data at two stations had ratios of 5/5 and 1/5 for total phosphorus. Turbidity ratios are similar at 4/5 and 1/4. Fecal coliform ratios are 1/1 and 0/1.

1998 ACTION: This reach will continue to be listed on the 1998 303(d) list with total phosphorus, turbidity, and stream bottom deposits as the cause above stations 0030. The reach will be listed on the 1998 305(b) lists as Full Support, Impacts Observed for fecal coliform.

2000 ACTION: Total phosphorus will be removed from the list.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: Previously called "Mora River (Rio la Casa to headwaters)," this reach was intensively sampled during the 2002 Canadian part 1 survey. There were 2 of 16 exceedences of the turbidity criterion of 25 NTU. **Therefore, turbidity will be removed as a cause of non support.** A thermograph deployed at Mora River @ Cleveland recorded no exceedences of the 20 degree C criterion. There were 15 of 16 exceedences of the specific conductance criterion of 500 umhos/cm. **Therefore, specific conductance will be added as a cause of non support**. This AU will be categorized as 5B – Mineral spring in the area and inflow from wetlands may be contributing to exceedences. Benthic scores were 70% of reference and percent fines were 464% of reference. Therefore, the SBD listing remains.

Mora River (Wolf Creek to Rio la Casa)
WQS: 20.6.4.307 AU: NM-2305.3.A_00

Previously listed for plant nutrients. There is only one sample station on this reach. All data are from 1988. Total phosphorus values are somewhat elevated. There is inadequate data to make a definitive determination.

1998 ACTION: This reach will continue to be listed on the 1998 303(d) list with plant nutrients as the cause.

2000 ACTION:

Plant Nutrients: A limited study was conducted on this reach in 1999. The study (using the Nutrient Assessment Protocol) concluded that this reach is nutrient limited and should remain listed for plant nutrients.

Plant nutrients will be retained as a cause of non-support.

2002 ACTION: The Nutrient Assessment protocol was performed in 2000 and 2001. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. A de-list letter was prepared.

2004 ACTION: None

Morphy (Murphy) Lake
WQS: 20.6.4.307 AU: NM-2305.3.B_30

1998 ACTION: Not listed

2000 ACTION: Morphy Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** by water temperatures that were nearly isothermal during the summer, with only slight dissolved oxygen stratification occurring. Aquatic macrophyte coverage reached nearly 100% and pond weed was observed year-round. The pH was quite alkaline, exceeding 9.0. Chlorophyll maxima were observed in the fall. Algal diversity was particularly high. No algal blooms were detected and phosphorus was determined to be limiting.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for dissolved oxygen, nutrients, pH and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

Rio la Casa (Mora River to the confl of North and South Forks)
WQS: 20.6.4.309 AU: NM-2306.A_030

Previously listed for turbidity and stream bottom deposits. There is one sampling station on this reach. All data are from 1988. Turbidity data indicated full support (0/2).

1998 ACTION: Turbidity was removed as a cause of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Rio la Casa was intensively sampled during the Canadian 1 study (2002). The Rio la Casa sampling station is used as a reference station for several AUs in the Canadian study. There were 11% fines at the station. **Therefore, SBD will be removed as a cause of non support.**

Sapello River (Manuelitas Creek to the headwaters)
WQS: 20.6.4.309 AU: NM-2305.3.A_30

Previously listed for stream bottom deposits. A biological assessment conducted by NMED in 1990 indicates full support of fishery use. The biological assessment was 80% of the reference site.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Sapello River (Mora River to Manuelitas Creek)
WQS: 20.6.4.307 AU: NM-2305.3.A_20

Previously listed for turbidity. While listed for turbidity, there are no applicable numeric turbidity criteria for this marginal coldwater and warmwater fishery. A biological assessment conducted by NMED in 1990 indicates Full Support, Impacts Observed for the fishery use. The biological

assessment was 70% of the reference site with references to in stream impacts from human activities.

1998 ACTION: This reach is listed as Partially Supported on the 1998 303(d) list with unknown as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 Canadian part 1 survey. This reach had very low flow due to drought conditions. The site was sampled eight times for fecal coliform, dissolved metals, nutrients, ions, field parameters, ions, Hg, and Se. There were no exceedences of the standards. **Therefore, unknown will be removed as a cause of non support.**

HUC 11080005 Conchas

Conchas River (Conchas Lake to the headwaters)
WQS: 20.6.4.305 AU: NM-2305.A_010

Previously listed for metals (Al) and stream bottom deposits. There is one sampling station on this reach. There is no dissolved aluminum data. Because it is a limited warmwater fishery, stream bottom deposits was proposed to be removed as a cause of non-support.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

HUC 11080006 Upper Canadian-Ute Reservoir

Canadian River (TX border to Ute Dam)
WQS: 20.6.4.301 AU: NM-2301_00

Previously listed for metals (mercury), salinity, plant nutrients and stream bottom deposits. There are two sampling stations on this reach. A 1988 intensive survey by NMED found no exceedences of the mercury criteria (0/1). The survey also found that the levels of nitrogen and phosphorus were low. There were no exceedences of the TDS (salinity) criteria for USGS station 07227140 (1969-1986). As the reach is designated as a limited warmwater fishery, stream bottom deposits was

proposed to be removed.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Canadian River (Ute Reservoir to Conchas Reservoir)
WQS: 20.6.4.303 AU: NM-2303_00

Previously listed for metals (Hg), plant nutrients and stream bottom deposits. There are two sampling stations on this reach. Mercury data indicate full support for the fishery use as there were no exceedences of criteria in the last 10 years (0/3). The fishery use is a LWWF and accordingly the stream bottom deposits listing has been dropped. Data was reviewed to assess the plant nutrients listing and it has been determined that this listing is not supported. There are several reports on this segment of the river that do not include any indications of nutrient enrichment. Chemical parameters of nitrogen, phosphorus, and DO are within watershed norms.

1998 ACTION: This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Ute Reservoir
WQS: 20.6.4.302 AU: NM-2302_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: Ute Reservoir was characterized (in a report titled, ***New Mexico Clean Lakes Program: Lake Water Quality Assessment for FY 89)*** as oligo-mesotrophic based on the Carlson index for chlorophyll a and total phosphorus concentrations. Total nitrogen to total phosphorus ratios indicate phosphorus is the limiting nutrient for algal growth. Phytoplankton density ranged from 57 to 156 cells per ml. The Shannon-Wiener diversity indices listed in the BIOS data tables indicate the algal diversity to be good to excellent (i.e., greater than 2.0). Thermal stratification and dissolved oxygen depletion in the bottom third of the

water column (i.e., 3.0 mg/l) was observed during August at the dam and Ute Creek outlet stations. Conversely, the Horseshoe station was well mixed and oxygenated throughout the year. Water quality standards were attained.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for metals (Al) and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

HUC 11080008 Revuelto

Revuelto Creek (Canadian River to headwaters)
WQS: 20.6.4.301 AU: NM-2301_10

Previously listed for metals, total ammonia and plant nutrients. Limited total ammonia data within the last 12 years has a ratio of 0/3. The levels of ammonia seen are approximately 20% of the criteria value. This stream is an intermittent stream according to USGS.

1998 ACTION: This reach was removed from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

HUC 11100101 Upper Beaver

Clayton Lake
WQS: unclassified AU: NM-9000.B_030

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

SOUTHERN HIGH PLAINS BASIN

HUC 12050001 Yellow House Draw

Tule Lake
WQS: unclassified AU: NM-9000.B_104

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994, NMED/SWQB, pages 13-22. Wildlife habitat and livestock watering uses sections 3100 L and 3100 K. Though possibly of natural origin, concentrations of Boron did exceed standard for livestock watering. Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: Re-evaluation of the Playa Lakes 1994 NMED/SWQB Report and associated data do not indicate any impairment due to Toxic Substances. Non toxicity tests were performed during the 1993 study. Therefore, Toxic Substances was removed as a cause of non support. The boron criterion of 5 mg/L was exceeded during the 1993 survey at concentration of 13 mg/L. Also, the system was noted to be eutrophic. Therefore, boron and plant nutrients will be listed as Full Support, Impacts Observed.

2004 ACTION: None

HUC 12050002 Blackwater Draw

Dennis Chaves Lake (Curry)
WQS: unclassified AU: NM-9000.B_036

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994, NMED/SWQB, pages 41-53. Wildlife habitat and limited warm water fishery uses sections 3100 L and 3100 E. There is no data suggesting problems with secondary contact. Low oxygen value from study was exceeded (by low concentration) resulting in use impairment. Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat and limited warmwater fishery with the cause being the narrative standard of toxic substances.

2002 ACTION: Secondary Contact and limited warmwater fishery were added as existing uses. Re-evaluation of the Playa Lakes 1994 NMED/SWQB Report and associated data do not indicate any impairment due to Toxic Substances. Non toxicity tests were performed during the 1993 study. Therefore, Toxic Substances was removed as a cause of non support. Dissolved oxygen was measured at 4 mg/L during the 1993 survey during before noon. This is the lower acceptable limit for a limited warmwater fisher. Also, the system was noted to be eutrophic. Therefore, dissolved oxygen will and plant nutrients be listed as Full Support, Impacts Observed until further study.

2004 ACTION: None

Green Acres Lake
WQS: unclassified **AU: NM-9000.B_046**

1998 ACTION: **Not listed**

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994, NMED/SWQB, pages 23-40. Wildlife habitat and Marginal coldwater fishery uses apply sections 3100 L and 3100 F.
No data exist to support concern of secondary contact. Low oxygen value from study was exceedence (by low concentration) of standard under MCF use. This playa is subject to great amounts of urban runoff with associated pollutants and oxygen demanding materials. Narrative section on toxic substances in section 1105, paragraph F.

"...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat and marginal coldwater fishery with the cause being the nutrients and organic enrichment.

2002 ACTION: Warmwater Fishery were added as existing uses. The dissolved oxygen concentration during the 1993 survey were below the lower limit of 6.0 mg/L for an existing use of marginal coldwater fishery. Therefore, dissolved oxygen will be listed as FSIO until further study. The nutrient and organic enrichment list was changed to plant nutrients for consistency with the narrative standards.

2004 ACTION: None

Ingram Lake
WQS: unclassified AU: NM-9000.B_050

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1994, NMED/SWQB, pages 93-109. Wildlife habitat, limited warm water fishery and livestock watering uses sections 3100 L, 3100 E and 3100 K. This playa lake has been affected for years with urban runoff, meat packing plant blood pits, solid waste dump encroachment, cheese processing plant waste and municipal waste water facility discharge. Dead animals and fish were observed. Narrative section on toxic substances in section 3100, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat limited warmwater fishery and livestock watering with the cause being toxic substances.

2002 ACTION: Re-evaluation of the Playa Lakes 1994 NMED/SWQB Report and associated data do not indicate any impairment due to Toxic Substances. Ingram Lake was eutrophic according to Carlson's indices for phosphorus. Therefore, the listing was changed from Toxic Substances to FSIO for plant nutrients until

further study.

2004 ACTION: None

HUC 12080001 Lost Draw

Lane Salt Lake
WQS: unclassified AU: NM-9000.B_072

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 42-62. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water (oil extraction industry). Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: Boron was added as Full Support Impacts Observed due to one measurement at 150 mg/L (standard of 5 mg/L). Radium 256 and 228 was added as Full Support Impacts Observed due to one measurement at 256 pCi/L (standard of 30 pi/L).

2004 ACTION: None

RIO GRANDE BASIN

UPPER RIO GRANDE (Cochiti Reservoir to CO border)

HUC 13010005 Conejos

Rio de los Pinos (New Mexico reaches)
WQS: 20.6.4.123 AU: NM-2120.A_900

Previously listed for metals (Al), total phosphorus, temperature and stream bottom deposits. Data on this reach are limited to single grab sample data collected at two times during 1990. The first sampling was during April and the second during August. For temperature, the ratios at four of five sampling stations (URG120.031010, URG120.031020, URG120.031030 and URG120.031040) were 1/2 with all exceedences during the summer sampling. Station URG120.031050 had no exceedences. Temperature will be classified as Full Support, Impacts Observed at the exceeding stations and full support at. URG120.031050. For total phosphorus, the results were similar but with the exceedences occurring during the spring sampling. Stations URG120.031010, URF120.031030 and URG120.031050 all had 1/2 ratios with stations URG120.031020 and URG120.031040 having 0/2 exceedences. For aluminum, only one station had an exceedence. At station URG120.031010, 1/1 samples collected exceeded the screening criteria. There were no exceedences of the acute criteria.

1998 ACTION: This reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list with aluminum, total phosphorus, and temperature as the causes. The reach continues to be listed as Partially Supporting on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION:

Metals (Al): Data reviewed from 8/09/90 shows that the aluminum listing on the Rito de los Pinos is erroneous. The SLD Analytical Report from the 1990 results shows digested aluminum at <0.3 mg/L. The STORET retrieval shows a dissolved aluminum number of 300 ug/L. This is obviously a data entry error and the listing for aluminum will be deleted.

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Benthic macroinvertebrate and pebble count data were collected at Rio de lost Pinos at the NMDGF area for comparison to reference condition at Rio Los Pinos at the FS boundary. The biological condition was 86% of reference condition at this site with 25% fines. Combined geomorphologic and benthic macroinvertebrate data from this station combined with the fact that a second Rio Los Pinos station is a reference station indicate Full Support for stream bottom deposits.

The dissolved oxygen criterion (≥6.0 mg/L) was exceeded on 17 May at Station 1 (5.32 mg/L) and at Station 2 (5.68 mg/L). A total of eight samples were collected at each station. However, the proportion of exceedences was such that this reach will be listed as Full Support Impacts Observed for dissolved oxygen.

2004 ACTION: In 2002, two thermographs were deployed on Rio de los Pinos at USGS gage and Rio de los Pinos at the USFS bridge. At the USGS gage, recorded temperatures from July 2 through August 31, 2002 exceeded the HQCWF criterion 508 of 1,446 times (35%) with a maximum temperature of 29.8°C. At the USFS bridge in 2002, recorded temperatures from July 2 through August 31, 2003 exceeded the HQCWF criterion 344 of 1,446 times (24%) with a maximum temperature of 27.7°C. In 2003, two thermographs were re-deployed at these two stations. At the USGS gage, recorded temperatures from July through August 31, 2002 exceeded the HQCWF criterion 246 of 1,446 times (17%) with a maximum temperature of 25.3°C. At the USFS bridge in 2003, recorded temperatures from July 2 through August 31, 2003 exceeded the HQCWF criterion 387 of 1,446 times (27%) with a maximum temperature of 27.1°C. **Therefore, temperature will be added as a cause of non support.**

Rio San Antonio (Montoya Canyon to headwaters)
WQS: 20.6.4.123 AU: NM-21210.A_901

Previously listed for stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Benthic macroinvertebrate and pebble count data were collected at for comparison to reference condition at Rio Los Pinos. The biological condition was 73% of reference condition at this site with 31% fines. There were 17% fines at the reference station which corresponds to an 82% increase in fines at the sample condition. Combined geomorphologic and benthic macroinvertebrate data from this water body **indicate Full Support Impacts Observed for stream bottom deposits.**

The dissolved oxygen standard (≥6.0 mg/L) was exceeded on 18 October at Station 4 (5.15 mg/L). The proportion of exceedences was such that this reach is listed **as Full Support Impacts Observed for dissolved oxygen.**

2004 ACTION: Previously listed as Rio San Antonio (CO border to headwaters), this AU was split to acknowledge the different character above at Montoya Canyon. Thermograph data from station 4 (Forest Road 87) indicate non-support for temperature for this AU, as instantaneous temperature readings exceeded 23°C (maximum = 26.97°C). **Therefore, temperature will be added as a cause of non support.**

Rio San Antonio (CO border to Montoya Canyon)
WQS: 20.6.4.123 AU: NM-2120.A_902

2004 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Previously listed as Rio San Antonio (CO border to headwaters), this AU was split to acknowledge the changing character between at Montoya Canyon. The station near the CO border at Ortiz was dry during the summer sampling run.

HUC 13020101 Upper Rio Grande

Bitter Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_705

Previously listed for metals (aluminum), stream bottom deposits, reduction of riparian vegetation and streambank destabilization. Aluminum data indicate an exceedence ratio of 3/3 at station URG120.028530.

1998 ACTION: The reach will be listed for aluminum at station URG120.028530 and stream bottom deposits.

2000 ACTION:

Metals (Al acute): Station URG120.028070 was sampled in the spring. The exceedence ratio for Al was 3/4 with an acute level of 750ug/L.

Metals (Al acute) will be retained as a cause of non-support

Stream Bottom Deposits: Sand and gravel operation plus land development above the gravel operations have lead to very high levels of sediment transport and deposition throughout this reach. An ongoing 319(h) program is attempting to stabilize this area.

Stream bottom deposits will be retained as a cause of non-support

2002 ACTION: None. TMDLs were drafted for acute aluminum and stream bottom deposits as part of the Red River TMDLs document.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Since no new data was available for Bitter Creek, the listings remain.

Cabresto Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_701

Previously listed for turbidity and stream bottom deposits. There have been no exceedences (0/5) of the turbidity criteria in the last five years. The cumulative turbidity ratio from three stations for 10 years is 1/21.

1998 ACTION: Turbidity will be removed as a cause of non-support. This reach is listed as Partially Supported on the 303(d) list with stream bottom deposits as the cause.

2000 ACTION:

Metals (Al chronic): Station URG120.028017 was sampled in the spring. The exceedence ratio for Al was 4/4.

A new listing will be added for metals (Al chronic).

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 7% fines <2mm (FS) and an embeddedness of 38.3%(FS).

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on Cabresto Creek.

2002 ACTION: None. TMDL was drafted for acute aluminum as part of the Red River TMDLs document.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Nine stations were sampled along Cabresto Creek Oct 6-7, 2002 and Mar 23, 2003. There were 0 of 17 exceedences of the dissolved aluminum chronic screening criterion 0.1305 ug/L (= 1.5 x 0.087 ug/L). Combining the most recent 5 years of available data (1999-2003), there were 4 of 21 (19%) total exceedences of the chronic screening criterion. The Assessment Protocol states that when consecutive day data is available, means will first be calculated and then compared to the chronic criterion. The 1999 spring data used to develop

the existing aluminum data was re-assessed in this fashion because it was collected on consecutive days, leading to one exceedence of the chronic criteria for aluminum. According to this re-assessment, Cabresto Creek should not have been listed for aluminum. More recent multi-season data submitted by Molycorp for multiple stations along Cabresto Creek did not show any exceedences (0 of 17). Due to this new data and the incorrect assessment of the 1999 data, the listing for aluminum was removed from the list. There were no exceedences of the hardness-dependent criteria for chromium, cadmium, copper, nickel, or zinc.

Comanche Creek (Costilla Creek to Little Costilla Creek)
WQS: 20.6.4.123 AU: NM-2120.A_827

Listed for total phosphorus, metals (Al, chronic), and stream bottom deposits. Some total phosphorus exceedences were recorded from 5-10 year data (1/16,1/4,1/12,3/12,1/10,2/10). Nonpoint source projects have been implemented in this watershed. Eight stations have been sampled within 5 years with no exceedences seen for total phosphorus. This is a total of 0/15 samples at the same stations sampled previously. Results for aluminum are similar which is expected since the source of phosphorus and aluminum in this watershed is from eroding soils. In the 5-10 year time period data ratios were 2/6, 0/3, 2/6, 2/6, 2/6, 2/7, and 2/6. In the last 5 years the data ratios are 0/2, 1/2, 1/2, 0/1, 0/2, and 0/1.

1998 ACTION: This reach is listed as Partially Supported on the 303(d) list with total phosphorus, aluminum and stream bottom deposits as the cause.

2000 ACTION: There is no longer a water quality standard for total phosphorus for the designated use of high quality coldwater fishery. Therefore, total phosphorus was removed as a cause of impairment. Total phosphorus concentrations will be measured during the Upper Rio Grande intensive study to verify the de-listing.

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality study. Benthic macroinvertebrate and pebble count data were collected at two sites for comparison to reference condition at Casias Creek. The biological condition was 71% and 62% of reference condition at these sites. There were 27.6 % fines at the reference site Casias Creek and 44% and 34% fines at the Comanche Creek above Costilla and Comanche Creek @ Upper Exclosure, respectively. Combined geomorphologic and benthic macroinvertebrate data from this water body **indicate Full Support Impacts Observed for stream bottom deposits.**

There were 0 of 16 exceedences for dissolved aluminum at the two sites. Therefore, **aluminum will be removed as a cause of Non Support.**

Total phosphorus was measured eight times at both stations. Twelve of these

measurements were below the detection limit. 0.04 mg/L and 0.071 mg/L were measured at Comanche Creek @ Upper Exclosure during the summer sampling run. 0.04 mg/L and 0.05 mg/L were measured at Comanche Creek above Costilla on during on 8/1/00 and 5/17/00, respectively.

2004 Action: Thermograph data from Station 11 (Comanche Creek below upper exclosure) indicate non-support for temperature as instantaneous readings exceeded 23°C (maximum = 27.1°C). **Temperature will be added as a cause of non-support.** Thermograph data from this station were collected during 2002 as the thermograph data from the 2000 intensive survey were inadvertently compromised.

Cordova Creek (Costilla Creek to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_823

Previously listed for turbidity, stream bottom deposits and total phosphorus. 0/9 samples at 2 stations show exceedences of the turbidity criteria. Total phosphorus is not supporting (5/10) at station the downstream station while the upstream station is fully supporting (0/3) for total phosphorus.

1998 ACTION: Turbidity will be removed as a cause of non-support. The reach will continue to be listed as Not Supported for total phosphorus and stream bottom deposits on the 1998 303(d) list.

2000 ACTION:

Total Phosphorus: This stream is severely impacted by increased sedimentation from NM196 that was built in the original stream channel up to the Ski Rio ski area. The stream is also severely impacted by modifications as a result of Ski Area development and additional runoff from snowmaking. Increased sedimentation is also a result of land development, grazing, and recreation at Ski Rio.

A TMDL was developed for Cordova Creek to address total phosphorus.

Stream Bottom Deposits: This stream is severely impacted by increased sedimentation from NM 196 that was built in the original stream channel up to the Ski Rio ski area. The stream is also severely impacted by modifications as a result of ski area development and additional runoff from snowmaking. Increased sedimentation is also a result of land development, grazing and recreation at Ski Rio.

A TMDL was developed for Cordova Creek to address stream bottom deposits.

Turbidity: This stream is severely impacted by increased sedimentation

from NM 196 that was built in the original stream channel up to the Ski Rio ski area. The stream is also severely impacted by modifications as a result of Ski Area development and additional runoff from snowmaking. Increased sedimentation is also a result of land development, grazing and recreation at Ski Rio.

A TMDL was developed for Cordova Creek to address turbidity.

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The dissolved oxygen standard (≥6.0 mg/L) was exceeded for two samples (5.88 mg/L on 01 August; 5.82 mg/L on 02 August) out of eight at Station 35. No exceedences were detected out of eight samples at Station 36. Thus, this water body is in **full support of the dissolved oxygen standard, but impacts have been observed** that warrant close attention during future surveys.

There were 0 of 16 turbidity exceedences during the 2000 study. Therefore, **turbidity will be removed as a cause of Non Support for this reach.**

There is no longer a water quality standard for total phosphorus for the designated use of high quality coldwater fishery. The Nutrient Assessment protocol was performed July 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. Therefore, **total phosphorus will be removed as a cause of Non Support for this reach.**

2004 ACTION: None. Although there were 0 of 16 turbidity exceedences during the 2000 study, visual observation and photodocumentation continues to show that Cordova Creek is impacted by sedimentation and turbidity following storm events due to the above mentioned causes. Nonpoint source projects are being implemented in this watershed.

Costilla Creek (CO border to diversion above Costilla)
WQS: 20.6.4.123 AU: NM-2120.A_810

Previously listed for stream bottom deposits only. The assessment review found that turbidity and metals (Al, acute) should be added to this listing due to 3/9 (33%) of turbidity readings within 5 years being above the criteria. 1/6 values exceeded the acute aluminum criteria and 2/6 (33%) exceeded the chronic aluminum criteria.

1998 ACTION: This reach is listed as Partially Supported on the 303(d) list with turbidity, aluminum, and stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The turbidity standard (25 NTU) was exceeded for both spring samples (87.7 NTU on 16 May; 44.7 NTU on 17 May) at Station 39. These values may be attributable to natural causes (i.e., spring runoff) or the operation of irrigation or flood control facilities (flows are at bankfull from spring to fall due to dam operations). However, benthic macroinvertebrate data indicate suboptimal habitat conditions, **thus this reach is considered to still be in Partial Support of the turbidity standard**.

Benthic macroinvertebrate and percent fines data was used to assess potential stream bottom deposits utilizing the Protocol for the Assessment of Stream Bottom Deposits. The biological condition was 56% of reference and had 24% fines at the sample station. The reference site used for comparison was Rio Hondo @ the USGS gage. According to the protocol, **stream bottom deposits will be noted as Full Support, Impacts Observed.**

The seasonal arithmetic means for aluminum were 0.075, 0.060, and <0.01 mg/L for spring, summer, and fall, resepectively. Arithmetic means were used because multiple day sampling data were available for aluminum. Therefore, **aluminum will be noted as Full Support.**

2004 Action: While preparing TMDLs for this assessment unit, it was determined that the station used to make these original listings (and the subsequent follow-up sampling in 2000) was actually upstream of this assessment unit. SWQB has actually never been able to sample this AU because it goes dry during the irrigation season (see gage and thermograph data). **Therefore, turbidity will be removed as a cause of non-support, and this AU will be listed as Category 4C because it is impaired by the pollutant "flow modification" due to diversion**. The the upstream AU – Costilla Creek (Diversion to Comanche Creek)—was reassessed below.

Costilla Creek (diversion abv Costilla to Comanche Creek)
WQS: 20.6.4.123 AU: NM-2120.A_820

2004 Action: This AU was intensively sampled during the 2000 Upper Rio Grande survey. The data were reassessed in 2003 because the lowest station in the assessment unit was previously mistakenly associated with the assessment unit downstream. There were three stations in this AU: Costilla above Costilla @ HWY 196 (station 39), Costilla above Amalia @ HWY 196 (station 38), and Costilla below Comanche Creek (station 6). A thermograph deployed in 2002 at the first station recorded a maximum temperature of 25.81 degrees C. **Therefore, temperature will be listed**

as a cause of non support. There were 3 of 24 exceedences of the turbidity criterion of 25 NTU.

Costilla Creek (Comanche Creek to Costilla Dam)
WQS: 20.6.4.123 AU: NM-2120.A_830

Previously listed for metals (Al, chronic) and turbidity. Turbidity values for 0-10 years at 3 stations were 1/17, 0/2 and 0/4. Aluminum has been recorded at acute levels at stations Costilla065 and Costilla095.

1998 ACTION: Remove turbidity as a cause on non-support for this reach. Aluminum will continue to be listed as a cause of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The seasonal arithmetic means for aluminum were 0.075, 0.070, and <0.01 mg/L for spring, summer, and fall, resepectively, at Station 40. Arithmetic means were use because we had multiple day sampling data for aluminum. The seasonal arithmetic means for aluminum were 0.077 and <0.013 mg/L for summer and fall, resepectively, at Station 12. There was only one data point for spring at this station, so the result was taken times 1.5 and compared to the chronic criterion of 0.087 mg/L. This value, 0.09 mg/L, exceeded the criterion for aluminum. Therefore, **aluminum will be noted as Full Support, Impacts Observed.**

One exceedence (0.02 mg/L) above the hardness-dependent acute criterion (0.006 mg/L) and chronic criterion (0.004mg/L) for dissolved copper was detected on 16 May at Station 12. The mean value for samples collected at this station for this parameter was below the chronic criterion, thus only a violation of the acute criterion is recognized. **However, the proportion of exceedences was such that this water body will be noted as Full Support, Impacts Observed for copper.**

One exceedence (0.09 mg/L) above the hardness-dependent acute criterion (0.062 mg/L) and chronic criterion (0.063 mg/L) for dissolved zinc was detected on 17 May at Station 40. The mean value for samples collected at this station for this parameter was below the chronic criterion, thus only a violation of the acute criterion is recognized. **However, the proportion of exceedences was such that this water body will be noted as Full Support, Impacts Observed for zinc.**

2004 ACTION: None

Embudo Creek (Cañada de Ojo Sarco to Picuris Pueblo bnd)
WQS: 20.6.4.114 AU: NM-2111_40

Previously listed as "Embudo Creek (Rio Grande to Picuris Pueblo bnd)**"** and listed for metals (chronic Al), turbidity, temperature, and stream bottom deposits. There are 4 sampling stations from a 1994 survey used to assess this reach. Temperature values were: 0/17, 1/9, 0/9 and 0/9. In 5-10 year data the values were similar. There appears to be no justification for a temperature listing on this reach. Aluminum exceeded the chronic screening criteria at stations URG111.021505 (2/5) and URG111.021590 (2/3) with similar results from 5-10 year data. Turbidity exceeded the criteria in 2/9 (22%) of the samples. Embudo Creek at USGS gauge station was sampled for macroinvertebrates in 1994. This station was NS (54%) with a habitat score of 36% compared to the reference. The write-up cites severe siltation as a cause of non-support.

1998 ACTION: Temperature will be removed as a cause of non-support for this reach. The reach will continue to be listed as Not Supported for turbidity, aluminum, and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled as part of the URG II 2001 survey. The assessment unit was split where the stream leaves the canyon and enters the developing valley. There were 0 of 3 exceedences of the chronic aluminum criteria using seasonal means (because consecutive day data were available) and 0 of 8 turbidity exceedences. **Therefore, aluminum and turbidity will be removed as causes of non support.** A benthic marcroinvertebrate survey was performed using Rio Santa Barbara at the Santa Barbara Campground as a reference. The bio score was 59% of reference, with 9% fines. **Therefore, benthic macroinvertebrate bioassessments will be added while SBD/sedimentation/siltation will be removed as a cause of non support**. The AU will be listed as category 5C until the cause of impairment is determined.

Embudo Creek (Rio Grande to Cañada de Ojo Sarco)
WQS: 20.6.4.114 AU: NM-2111_41

Previously listed as "Embudo Creek (Rio Grande to Picuris Pueblo bnd)**"** and listed for metals (chronic Al), turbidity, temperature, and stream bottom deposits. There are 4 sampling stations from a 1994 survey used to assess this reach. Temperature values were: 0/17, 1/9, 0/9 and 0/9. In 5-10 year data the values were similar. There appears to be no justification for a temperature listing on this reach. Aluminum exceeded the chronic screening criteria at stations URG111.021505 (2/5) and URG111.021590 (2/3) with similar results from 5-10 year data. Turbidity exceeded the criteria in 2/9 (22%) of the samples. Embudo Creek at USGS gauge station was sampled for macroinvertebrates in 1994. This station was NS (54%) with a habitat score of 36% compared to the

reference. The write-up cites severe siltation as a cause of non-support.

1998 ACTION: Temperature will be removed as a cause of non-support for this reach. The reach will continue to be listed as Not Supported for turbidity, aluminum, and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled as part of the URG II 2001 survey. The assessment unit was split where the stream leaves the canyon and enters the developing valley. There were 0 of 3 exceedences of the chronic aluminum criteria using seasonal means (because consecutive day data were available) and 2 of 8 turbidity exceedences. **Therefore, aluminum will be removed and turbidity will remain a cause of non support.** A benthic marcroinvertebrate survey was performed using Santa Cruz River in Cundiyo as a reference. The bio score was 65% of reference, with 24% fines. This AU goes through episodes of heavy sedimentation followed by scouring. During previous surveys, the cobble was 100% embedded with sand. Heavy sediment inputs in Dixon come from roads running perpendicular to the river. Also, dry watercourses in Dixon are used as roads. **Therefore, sedimentation/siltation will be added as a cause of non support**.

Goose Lake
WQS: 20.6.4.123 AU: NM-2120.B_12

1998 ACTION: Not listed

2000 ACTION: Listed for siltation, nutrients, and fish guidelines.

2002 ACTION: **The cause of Fish Guidelines was removed** because this in not on the current fish consumption guidelines.

2004 ACTION: None

Guaje Canyon (San Ildefonso bnd to headwaters)
WQS: unclassified AU: NM-9000.A_005

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded four times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 481.73, 194.27, 464.26, and

441.02. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded four times in time-weighted composite samples in 2000 and 2001. Selenium exceedences were as follows (ug/L): 8.8, 17.3, 34.5, and 17.6. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

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2004 ACTION: Selenium will remain listed as Non Support. There was an additional exceedence of the Wildlife Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) in 2002 during stormwater quality sampling. Total selenium exceedences were as follows (ug/L): 10.0 and 10.0 at station GU-0.01 on 7/31/02 (counted as one exceedence according to the Assessment Protocol, section 2.1.2). These data were collected by the NMED DOE Oversite Bureau. There were three additional selenium exceedences as follows in LANL 2002 time-weighted storm water samples (ug/L): 8.12, 10.1, and 9.06.

Gross Alpha will remain listed as Non Support. There was one additional exceedences of the Livestock Watering criterion of 15 pCi/L at station GU-0.01 (692.99 pCi/L) in 2002. This datum was collected by the NMED DOE Oversite Bureau. In the LANL time-weighted composite 2003 storm event data set, there were three additional exceedences at the station above Rendija Canyon (2183.47, 1135.54, and 1851.93 pCi/L) and one additional exceedence at the station at SR-502 (2959.34 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

Little Tesuque Creek (Big Tesuque Creek to the headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_34

Listed for turbidity and metals (Al and Cd). Criteria violations for turbidity are documented at all stations. The listing for Cd is not supported. 1/10 (10%) samples on the reach for dissolved cadmium were reported as greater than the chronic screening criteria. One exceedence within 5 years is permitted. This sample did not meet quality control requirements because the dissolved portion exceeded the reported total Cd concentration. Acute exceedences of aluminum were observed at stations URG118.003407, URG118.003414, and URG118.003417.

1998 ACTION: The reach is listed on the 1998 303(d) list as Not Supported with aluminum and turbidity as causes of non-support. Cadmium will be removed as a cause of non-support for this reach.

2000 ACTION: None

2002 ACTION: None

2004: ACTION: This reach was intensively sampled as part of the URG II survey in 2001. There were 0 of 8 turbidity exceedences at the station above Hyde Park

and 0 of 8 turbidity exceedences at the station at the first HWY 475 crossing during the survey. Therefore, **turbidity will be removed as a cause of non-support.** The acute aluminum standard of 0.77 ug/L was not exceeded during any of the ten sampling events at either station. During the 4-day spring run, the mean of the results (0.138 ug/L) exceeded the chronic criteria of 0.087 ug/L at the station above Hyde Park. The mean of the results (0.5 ug/L) also exceeded the chronic criteria of 0.087 ug/L at the station at the first HWY 475 crossing. Means were calculated and compared against the chronic criterion because consecutive day data were available. Because there was more than one exceedence of the chronic criterion, **aluminum will be retained as a cause of non-support**.

WQS 20.6.4.114 should include a statement regarding "tributaries of the Rio Tesuque below the Santa Fe national forest boundary" so that the assessment unit Little Tesuque Creek (Rio Tesuque to USFS boundary) would fall clearly under this WQS instead of 20.6.4.121 (where it currently resides). Regardless of this proposed WQS change, it will still be listed for aluminum.

Los Alamos Canyon (San Ildefonso bnd to Los Alamos Rsrv)
WQS: unclassified AU: NM-9000.A_006

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded 10 times in time-weighted composite samples in 2000 and 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 748.59, 677.72, 197.92, 344.43, 34.70, 590.59, 246.77, 120.62, 543.66, and 102.27. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded nine times in time-weighted composite samples in 2000 and 2001. Selenium exceedences were as follows (ug/L): 7.54, 8.41, 8.81, 18.8, 9.04, 8.33, 22.7, 9.3, and 12. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001. **Mercury was listed as Full Support Impacts Observed** because the Wildlife Habitat chronic screening criterion of 1.16 ug/L (0.77 ug/L x 1.5) was exceeded on 7/26/01 with a value of 1.69 ug/L.

The Wildlife Habitat chronic screening criterion of 0.021 ug/L (0.014 ug/L x 1.5) was exceeded on 10/28/00 with a value of 0.12544 ug/L. This data was provided by DOE Oversite. NMED cannot use these data to determine water quality for the purposes of the 303(d) list because the DOE Oversite used a method that is not currently in listed in 40 CFR Part 136. They used a method published by USEPA Office of Water entitled Method 1668, Revision A: *Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by HRGC/HRMS* (USEPA, EPA-821-R-00-

002, December 1999). Section 1.2, page 1 of the Method states: "This Method is for use in data gathering and monitoring associated with the Clean Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and the Safe Drinking Water Act." The DOE Oversight Bureau first began using method EPA Method 1668A for determining PCBs in fish tissue in 1999 and 2000. The Method Detection Limit in water for the 40 CFR Part 136 AROCLOR method is 1.0 ug/L or seventy one times the wildlife habitat standard of 0.014 ug/L. The 40 CFR Part136 method is not capable of detecting PCBs at the level of the New Mexico Wildlife Standard. Method 1668A is capable of detecting PCBs up to 2,800 times below the Wildlife Standard.

2004 ACTION: None

Los Alamos Reservoir
WQS: unclassified AU: NM-9000.B_077

2002 ACTION: Marginal coldwater fishery was added as an existing use. In 2000, the Cerro Grande fire within the contributing watershed resulted in debris flows, erosion, and sedimentation that filed Los Alamos reservoir with organic debris, sediments, and potential contaminants adhered to the sediments. Physical and chemical changes resulted. Fish kill was observed. Therefore, this reservoir was listed as Not Supporting for unknown toxicity until further study.

2004 ACTION: The existing fishery use was changed to Coldwater Fishery.

Pioneer Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_703

Previously listed for turbidity, stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Stream Bottom Deposits: Excessive bedload was observed during all visits. Pioneer Creek has been channelized. Its mouth has been moved 1/2 to 1/4 miles downstream (personal communication with local residents in October 1999). This channelization has reduces the gradient and has

greatly increased the amount of sediment deposition in this part of the creek.

Stream bottom deposits will be retained as a cause of non-support

Turbidity: Station URG120.028065 was sampled in the spring. The exceedence ratio for turbidity was 4/4.

Turbidity will be retained as a cause of non-support

2002 ACTION: A TMDL was drafted for turbidity as part of the Red River TMDLs. Benthic macroinvertebrate and percent fines data was collected fall of 2001 in order to assess potential stream bottom deposits utilizing the Protocol for the Assessment of Stream Bottom Deposits. The biological condition was 63% of reference and had 54% fines at the sample station. The reference site used for comparison was Columbine Creek. The percent fines observed at this reference site was 4%. According to the protocol, **stream bottom deposits will be noted as Full Support, Impacts Observed. A de-list letter was prepared.**

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Since no new data was available for Pioneer Creek, the turbidity listing remains.

Placer Creek (Red River to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_706

Previously listed for stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION:

Stream Bottom Deposits: The bottom 1/2 mile of this runs parallel to a National Forest Service road and eventually runs down the middle of the road delivering high sediment loads to the Red River.

Stream bottom deposits will be retained as a cause of non-support

Metals (Al acute): Station RR09 was sampled in the spring. The exceedence ratio for Al was 4/4 with an acute level of 1075ug/L.

A new listing will be added for metals (Al acute).

2002 ACTION: A TMDL was drafted for acute aluminum as part of the Red River TMDLs. Benthic macroinvertebrate and percent fines data was collected fall of 2001 in order to assess potential stream bottom deposits utilizing the Protocol for the Assessment of Stream Bottom Deposits. The biological condition was 72% of reference and had 28% fines at the sample station. The reference site used for comparison was Columbine Creek. According to the protocol, **stream bottom deposits will be noted as Full Support, Impacts Observed. A de-list letter was prepared.**

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Since no new data was available for Placer Creek, the listing remains.

Pojoaque River (San Ildefonso bnd to Pojoaque bnd)
WQS: 20.6.4.114 AU: NM-2111_20

Previously listed as "Pojoaque River from mouth on Rio Grande to Nambe Dam" and listed for turbidity, stream bottom deposits and nutrients. There is limited 5-10 year data, 0/6 samples at 2 stations from 1987 are greater than the 50 NTU standard. In the Best Professional Judgment of the Surveillance and Nonpoint staff this stream reach is not impacted by nutrients. There have been no documented cases of algal growth. There are no numeric stream standards for nutrients for this stream classification. Stream bottom deposits and extreme low flow events impact this reach.

1998 ACTION: This reach will upgraded to Full Support for turbidity and nutrients. The reach will continue to be listed on the 303(d) list as Partially Supported for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: None. Name was revised because previous name included portions of tribal land.

2004 ACTION: None.

Pueblo Canyon (Los Alamos Canyon to headwaters)
WQS: unclassified AU: NM-9000.A_43

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded four times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 1196.51, 77.56, 866.74, and 1569.45. **Selenium was listed as Non Support** because the Wildlife

Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) was exceeded three times in time-weighted composite samples in 2001. Selenium exceedences were as follows (ug/L): 26.8, 15.1, and 13.1. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

The Wildlife Habitat chronic screening criterion for PCBs of 0.021 ug/L (0.014 ug/L x 1.5) PCBs was exceeded on 09/08/00 with a value of 0.8217 ug/L near Bayo Treatment Plant and 0.5208 ug/L in the North Tributary. This data was provided by DOE Oversite. NMED cannot use these data to determine water quality for the purposes of the 303(d) list because the DOE Oversite used a method that is not currently in listed in 40 CFR Part 136. They used a method published by USEPA Office of Water entitled Method 1668, Revision A: *Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by HRGC/HRMS* (USEPA, EPA-821-R-00-002, December 1999). Section 1.2, page 1 of the Method states: "This Method is for use in data gathering and monitoring associated with the Clean Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and the Safe Drinking Water Act." The DOE Oversight Bureau first began using method EPA Method 1668A for determining PCBs in fish tissue in 1999 and 2000. The Method Detection Limit in water for the 40 CFR Part 136 AROCLOR method is 1.0 ug/L or seventy one times the wildlife habitat standard of 0.014 ug/L. The 40 CFR Part136 method is not capable of detecting PCBs at the level of the New Mexico Wildlife Standard. Method 1668A is capable of detecting PCBs up to 2,800 times below the Wildlife Standard.

2004 ACTION: **Mercury was added as Non Support** because the Wildlife Habitat chronic screening criterion of 0.001155 mg/L (0.00077 mg/L x 1.5) was exceeded four times in 2002 during stormwater quality sampling. Total mercury exceedences were as follows (mg/L): 0.00390* and 0.00150 at station PU-0.3 on 7/26/02 (counted as one exceedence according to the Assessment Protocol, section 2.1.2), 0.00170 at station PU-5.5 on 7/18/02, and 0.0063* at station PU-5.5 on 7/25/02, and 0.00130* at station PU-0.01 on 7/18/02. These data were collected by the NMED DOE Oversite Bureau. A time-weighed composite sample collected by LANL on 9/26/2003 (0.0013 ug/L) also exceeded the screening level.

NOTES: * = Holding time was exceeded for these measurements. According to the Assessment Protocol (section 2.1.1), "…r*esults from samples that are flagged by the laboratory as "exceeded holding time" will be considered estimates and will be used during the assessment process unless the result is deemed "rejected" based on professional judgment … From USEPA's perspective, the time and expense associated with the sample collection and*

processing is forfeited when data exceeding the holding time is rejected even though the analytical results may in fact be accurate and usable (USEPA 2002e).

Selenium will remain listed as Non Support. There were three additional exceedences of the Wildlife Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) in 2002 during stormwater quality sampling. Selenium exceedences were as follows (ug/L): 8.2 at station PUN-6.7 on 7/18/02, 30.0 at station PUN-0.01 on 7/18/02, and 40.0 and 10.0 at station PUN-0.3 on 7/26/02 (counted as one exceedence according to the Assessment Protocol, section 2.1.2). These data were collected by the NMED DOE Oversite Bureau. A time-weighed composite sample collected by LANL on 8/30/2003 (9.54 ug/L) also exceeded the screening level.

Gross Alpha will remain listed as Non Support. There were ten additional exceedences of the Livestock Watering criterion of 15 pCi/L. Exceedences ranged from 36.86 to 2909.86 pCi/L. These data were collected by the NMED DOE Oversite Bureau in 2002. In the time-weighted composite LANL 2003 storm event data set, there were three additional exceedences at the station above Acid Canyon (398.97, 39.68, and 144.66 pCi/L) and two additional exceedences at the station above SR-502 (335.68 and 35.07 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

An active watershed group has formed in the Pajarito Plateau and has developed a Watershed Action Restoration Strategy (WRAS) to help address water quality concerns in the Pueblo Canyon Watershed. The document is available on the web at http://www.ppwatershed.org/ppwatershed/default.htm.

Red River (Placer Creek to headwaters)
WQS: 20.6.4.123 AU: 2120.A_710

2000 ACTION:

Metals (Al chronic): Station HRG22 was sampled in the spring. The exceedence ratio for chronic Al was 8/8 with a mean concentration of 254ug/l.

A new listing will be added for metals (Al chronic).

2002 ACTION: A TMDL was drafted for chronic aluminum as part of the Red River TMDLs.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and

Cabresto Creek. There were 0 of 2 exceedences of the dissolved aluminum chronic criterion of 0.1305 ug/L (=1.5 x 0.087 ug/L) at the one station in this AU (Zwergle). Combining the most recent 5 years of available data (1999-2003), there were 8 of 10 total exceedences of the chronic criterion. Therefore, the listing remains. There were no exceedences of the hardness-dependent criteria for chromium, cadmium, copper, nickel, or zinc.

Red River (Rio Grande to Placer Creek)
WQS: 20.6.4.122 AU: NM-2119_10

Previously listed for metals (Al, Cd, Zn), turbidity, and stream bottom deposits. Aluminum has been sampled at numerous stations along this reach. The ratios for chronic impacts at these events are 0/6, 1/3, 1/6, 0/3, 0/3, 2/8, 0/8, 1/8, and 0/6. For cadmium (chronic) the ratios are 0/6, 0/3, 0/6, 0/3, 0/3, 0/8, 0/8, 0/8, and 0/6. There have been no acute exceedences of aluminum or cadmium within the last 10 years. However, there are continuing concerns about these metals from groundwater seeps to the Red River. The reach is not supporting for zinc, at acute levels, at two stations (HRG24, 2/6 and HRG25, 2/3) and fully supporting at all other stations. A March 1996 report by NMED documented high concentrations of aluminum, cadmium, copper, and zinc in groundwater seeps to the Red River (Red River Groundwater Investigation, March 1996). These concentrations exceeded acute criteria and indicated that acute criteria would be exceeded in the Red River. At station URG120.028025, toxicity testing indicated chronic toxicity in a water sample collected on April 15, 1997. A biological survey was conducted in 1992 at eight stations along the Red River. Seven of these stations are in the referenced reach. The biology at stations 2 and 3 that are above the town of Red River were Full Support (90 and 97% respectively). Station 3 that is in town but above the WWTP was found to be Full Support, Impacts Observed. Station 4 downstream from the WWTP was only Partially Supporting (66%). All stations below this point were Not Supporting. Stations 6, 7, and 8 below Molycorp were 45%, 37%, and 57% of the reference. The habitat assessments for these stations show a similar pattern. According to the survey write-up, the stream bottom habitats show a downstream pattern of decline due to channel alteration, loss of vegetation and a reduction of available stream bottom substrate due to mineral deposition. Turbidity is Full Support, Impacts Observed at all stations (2/16,1/11,2/15,1/4,1/12).

1998 ACTION: This reach is included on the 1998 303(d) list as Not Supported with metals and stream bottom deposits as the cause of non-support. Turbidity has been dropped as a cause of non-support but will be listed on the 1998 305(b) list as Full Support, Impacts Observed.

2000 ACTION:

Metals: Seven Red River mainstem stations were sampled in the spring of 1999. Station HRG27 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4). Station HRG25 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4),

Cd (0/4) and Cu (0/4). Station URG120.028045 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4). Station URG23.3 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4). Station HRG23.1 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4) and Station URG120.028069 had an exceedence ratio for chronic Al of 4/4 and exceedence ratios for chronic Zn (0/4), Cd (0/4) and Cu (0/4).

Al will be retained as a cause of non support at all stations. Zn, Cd and Cu will be removed as causes of non support

Stream Bottom Deposits: Nine stations were evaluated along this reach. Stations are listed from the lowest to highest:
RR below the fish hatchery had 17% fines <2mm (FS) and an embeddedness of 47.8%(FSIO), RR above fish hatchery had 10% fines <2mm (FS) and an embeddedness of 38.2%(FS), RR above Questa Ranger Station had 11% fines <2mm (FS) and an embeddedness of 57.9%(PS), RR@GoatHill Gulch Campground had 24% fines <2mm (FSIO) and an embeddedness of 49.4%(FSIO), RR@Bobita above Molycorp had 17% fines <2mm (FS) and an embeddedness of 34.9%(FS), RR below Elephant Rock near Fawn Lakes had 12% fines <2mm (FS) and an embeddedness of 31.3%(FS), RR@Junebug Campground had 16% fines <2mm (FS) and an embeddedness of 55.4%(PS), RR@Zwergle Dam had 6% fines <2mm (FS) and an embeddedness of 30.5%(FS) and West Fork of the RR had 6% fines <2mm (FS) and an embeddedness of 37.3%(FS).
Two out of the nine stations are considered partially supporting their designated use (22%). According to the Assessment Protocol, This reach is considered full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: A TMDL was drafted for chronic aluminum as part of the Red River TMDLs.

2004 ACTION: Molycorp submitted monitoring data for various stations on Red River and Cabresto Creek. Thirty-three stations were sampled along this portion of

the Red River in 2002 and 2003. There were 77 of 123 exceedences of the dissolved aluminum chronic screening criterion 0.1305 ug/L (= 1.5 x 0.087 ug/L). Combining the most recent 5 years of available data (1999-2003), there were 101 of 147 (68.7%) total exceedences of the chronic screening criterion. Therefore, the listing remains. There were no exceedences of the hardness-dependent criteria for chromium, cadmium, copper, nickel, or zinc.

There were also two chronic water and one chronic sediment toxicity tests (on 10/25/00) with significant effect noted as compared to controls or reference conditions collected between 1999-2003 (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). Additionally, three sites were tested by CEC on 10/25/00 the request of Molycorp. The sites handled by CEC (downstream of Junebug Campground, downstream of Hansen Creek, and Goat Hill Campground) The results of that toxicity testing found significant effects on *C. dubia* reproduction at the site downstream of Hansen Creek and from Goat Hill Campground for water tests. Significant reproductive effects were also seen for *C. dubia* at all three sites and *P. promelas* survival at Junebug Campground for sediment tests. According to the Assessment Protocol, since significant effects were noted in more than one chronic test, both **Water Bioassay – Chronic and Sediment Bioassay - Chronic will be added as a cause of non support.**

Rendija Canyon (Guaje Canyon to headwaters)
WQS: unclassified AU: NM-9000.A_45

2002 ACTION: **Selenium was listed as cause of Partial Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded two times in time-weighted composite samples 2000 and 2001. Selenium exceedences were as follows (ug/L): 10.0 and 28.3. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

2004 ACTION: None.

Rio Chiquito (Picuris Pueblo bnd to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_421

2004 ACTION: This stream reach was seasonally sampled during the URG II 2001 survey. There were 2 of 3 exceedences of the turbidity criterion of 25 NTU. **Therefore, turbidity will be added as a cause of non support.**

Rio Chupadero (USFS bnd to headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_40

Listed for metals (Al, Ni), turbidity, stream bottom deposits and total phosphorus. For turbidity for the last five years the ratio of exceedences is 0/5 for the ten year period the ratios are 7/27 (26%). All turbidity exceedences are from spring sampling during runoff conditions. Turbidity values are not excessive. The greatest is 30 NTU. Station Chupadero Upper has 1/4 exceedences of the acute criteria for aluminum. Other stations are full support for dissolved aluminum. In 1988 1/1 sample was greater than the chronic criteria for dissolved nickel. Additional samples for dissolved nickel at these stations (0/4) from 1991-93 were all below the criteria. The cumulative ratio of all nickel samples for the reach is 1/13 in the last ten years. Total phosphorus data is available for the ten year period. Ratios for the three stations are 1/17 and 4/19 at the upper and lower Chupadero stations respectively for 5-10 year data and 0/1 within the last five years at the same stations. An additional station within 5 years has a ratio of 1/4.

1998 ACTION: The reach is listed as Not Supported on the 1998 303(d) list with turbidity, Al and stream bottom deposits as the cause of non-support. Nickel will be removed as a cause of non-support based on the most recent data. The reach will be listed as Full Support, Impacts Observed on the 1998 305(b) report with total phosphorus as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was surveyed as part of the 2001 URGII survey. The Rio Chupadero was sampled just upstream of the Rio en Medio diversion. The reference site was Rio Nambe above Nambe Reservoir. Although there were 43% fines at the Rio Chupadero site, but the benthic score was 81% of reference. Therefore, **stream bottom deposits will be removed as a cause of non support.** There were 4 of 8 exceedences of the turbidity criterion (10 NTU) at the station "above summer homes" and 1of 8 turbidity exceedences at the station at Borrego Canyon. The tubidity exceedences were minor in magnitude and all but 1 on 10/02/2001 were due to natural causes (ie., spring snowmelt). Benthic macroinvertebrates in this reach do not indicate impairment (81% of reference). **Turbidity will remain listed as a cause of non support -- additional data is needed to determine whether exceedences due to natural causes.**

The acute alumium standard of 0.77 ug/L was not exceeded during any of the sampling events at either station. During the 3-day spring run, the mean of the results (0.218 ug/L) exceeded the chronic criteria of 0.087 ug/L at the station "above summer homes." The mean of the results (0.13 ug/L) also exceeded the chronic criteria of 0.087 ug/L at the station at at Borrego Canyon. Means were calculated and compared against the chronic criterion because consecutive day data were available. Because

there was more than one exceedence of the chronic criterion, **aluminum will be retained as a cause of non-support**. As aluminum is naturally occurring in this area and therefore exceedences were only noted in association with snowmelt runoff, **this reach will be categorized in 5B** before a TMDL is scheduled.

Rio en Medio (non-pueblo lands Pojoaque R to Aspen Ranch)
WQS: 20.6.4.121 AU: NM-2118.A_41

Listed for metals (Al, Cd), turbidity, and total phosphorus. Cadmium was sampled at three stations on this reach. Ratios within the last 5 years are 0/1, 0/3, and 0/3. Ratios for five-ten year data are 0/6, 1/3, and 0/4 at the same stations. Similarly for aluminum data ratios are 1/4, 2/3, and 3/5 in the 5-10 time frame and 0/3, 0/3, and 0/1 within the last five years. For turbidity data from the same stations, ratios are 3/12, 0/13 and 3/11 in the 5-10 year period and 0/4, 0/3, and 0/1 for the last 5 years. For total phosphorus, 3/16 samples exceeded the criteria at station HRG80 with two other stations having 2/15 and 0/20 ratios within 5-10 years and 0/5 and 0/1 in the last 5 years. A biological assessment was conducted on this reach in 1994. The biological assessment found this station to be Fully Supporting (84%). The HBI for this station was 2.21which is rated as excellent for organic pollution.

1998 ACTION: Cadmium and aluminum will be removed as causes of non-support. The reach is Full Support, Impacts Observed for turbidity and total phosphorus. The biological data is sufficient to classify the reach as Full Support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None.

Rio Fernando de Taos (Rio Pueblo de Taos to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_512

Previously listed for metals (Al), turbidity, total phosphorus, and stream bottom deposits. The Al listing should be not supporting for the entire reach based on acute ratios of 3/7, 2/4, 2/6, 1/6, and 1/6, 2/9, and 1/6. Ratios for turbidity are 2/8, 1/8, 1/8, 1/7, 1/10, 1/9, 1/8 and 1/8. Ratios for total phosphorus are 2/10, 3/9, 2/9, 2/9, 3/12, 2/11, 2/9, and 3/10. It should be noted that all exceedences come from the same spring runoff event.

1998 ACTION: Turbidity will be removed as a cause of non-support for this reach. The reach will be listed in the 1998 305(b) report as Full Support, Impacts Observed with turbidity as the cause. The 1998 303(d) list continues to show this reach as Partially Supported for aluminum, total phosphorus, and stream bottom deposits.

2000 ACTION: 10 (31 July); 856 mS/cm at Station 23 (19 October); and 707 at Station 25 (31 July). Thus, **this reach is listing for Not Supporting with conductivity as the cause.**

Thermograph data from Station 23 (maximum = 24.51°C) indicate non-support of the temperature standard as instantaneous readings exceeded 23°C and temperature exceeded 20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 22) consecutive days. Thus, **this reach is listing of Non Support with temperature as the cause.**

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. One station at the highway 64 bridge is considered a reference station and is therefore Fully Supporting. The other station at El Nogel was 92% of biological reference condition using Cieneguilla as the reference station. There were 55% fines measured at Cieneguilla and 92% fines measured at Rio Fernando at HWY 64 bridge. Rio Fernando de Taos is a Rosgen classification E6 at this station. Although the overall percent fines is high, it is an E6 reference site with healthy habitat, benthic macroinvertebrate populations, and fish. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

Total phosphorus was measured eight times at HWY 64 bridge, twelve times at the USGS gage, and seven times near lower Ranchito. Six measurements at HWY 64 bridge and eight measurements at the USGS gage were below the detection limit. 0.062 mg/L and 0.209 mg/L were measured at at HWY 64 bridge during summer and fall sampling runs, respectively. Detected concentrations ranged from 0.03 to 0.05 mg/L and 0.03 to 0.07 mg/L the USGS gage and near lower Ranchito, respectively.

2004 ACTION: None.

Rio Frijoles (Rio Medio to Pecos Wilderness)
WQS: 20.6.4.121 AU: NM-2118.A_60

Previously listed for total phosphorus, reduction of riparian vegetation and streambank destabilization. All data are from a 1988 survey. For total phosphorus, the exceedence ratio was 1/5, full support, impacts observed.

1998 ACTION: This reach is full support, impacts observed for total phosphorus and will be reflected in the 305(b) report. This reach will continue to be listed as Partially Supported for unknown cause on the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This stream reach was seasonally sampled during the URG II 2001 survey. There were 1 of 3 exceedences (33% exceedence rate) of the turbidity criterion of 10 NTU. A thermograph was deployed. There were no exceedences of the temperature criterion on 20 degrees C. There were no other exceedences of water quality standards. **Therefore, cause unknown will be removed as a cause of non support.**

Rio Grande (Red River to CO border)
WQS: 20.6.4.122 AU: NM-2119_05

Previously listed under "Rio Grande from Rio Pueblo de Taos to the NM-CO border" and listed for turbidity, stream bottom deposits and temperature. Only 1/37 (3%) samples collected from four stations in this reach exceeded the temperature criteria. Turbidity was 1/8(13%) at each of the four stations on this reach.

1998 ACTION: Temperature will be upgraded to Full Support. Turbidity will be listed on the 305(b) report as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive survey. The dissolved oxygen standard (≥6.0 mg/L) was exceeded on 16 May at Station 7 (5.5 mg/L). Seven samples were taken during the 2000 study. The proportion of exceedences was such that this reach is **Full Support Impacts Observed for dissolved oxygen.**

Seven of eight samples (maximum = 9.36) were outside the allowable pH range (6.6-8.8) at Station 7. Thus, this reach is listed as **Non Support for pH.**

Three of eight samples (maximum = 28.3°C) were above the criterion for temperature at Station 7. All three exceedences occurred during the summer sampling effort. Thus, this reach is listed as **Non Support for temperature**. A thermograph needs to be deployed to verify this listing and to generate data for the temperature TMDL.

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. Rio Grande at the CO border (Lobotos) was considered to be reference station. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

2004 ACTION: None. Elevated pH levels are often indicative of nutrient enrichment. The Nutrient Assessment Protocol was not completed in this area, so we do not have adequate data to determine whether nutrient enrichment is occurring. SWQB is in the process of refining our Nutrient Assessment Protocol and

determining nutrient criteria. This AU will be studied as part of that effort to determine whether nutrient enrichment is contributing to elevated pH levels in this AU. Therefore, this AU will be listed under Category 5C as needing additional information. TMDL was drafted for temperature (April 2004).

Rio Grande (Rio Pueblo de Taos to Red River)
WQS: 20.6.4.122 AU: NM-2119_00

Previously listed under "Rio Grande from Rio Pueblo de Taos to the NM-CO border" and listed for turbidity, stream bottom deposits and temperature. Only 1/37 (3%) samples collected from four stations in this reach exceeded the temperature criteria. Turbidity was 1/8(13%) at each of the four stations on this reach.

1998 ACTION: Temperature will be upgraded to Full Support. Turbidity will be listed on the 305(b) report as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None.

Rio Grande (Embudo Creek to Rio Pueblo de Taos)
WQS: 20.6.4.114 AU: NM-2111_12

Previously named "Rio Grande from Guaje Canyon to the confluence with the Rio Pueblo de Taos" and listed for metals (Hg and Al), turbidity, temperature, stream bottom deposits and pH. For pH, there is an extensive data set. The cumulative ratio of 7 stations is 7/137. No single stations have ratios below full support. pH will be removed from the list. For temperature, the cumulative ratio of exceedences to samples at 12 stations is 2/100. Temperature should be removed from the list. Five stations contain information on aluminum. Three stations URG111.021035,URG111.021025, and URG110.003115 are Full Support, Impacts Observed. Turbidity is not supported at stations URG111.004407, URG111.003903, URG111.021035, URG111.021025, URG111.004410 and URG111.003115.

There is a ratio of 2/9 exceedences of mercury greater than detection in data prior to 1989 at USGS station 08276500. The greatest value was 0.2 ug/l. Twelve samples reported for total mercury at this site since 1990 have been less than detection (0.1 ug/l). NMED has collected twenty-five samples in this segment in the last 10 years. All have been reported back as less than detection (0.1 ug/l). The ROD should be modified to show the cumulative ratio of exceedences for mercury is 2/41 in the last 10 years and *0/31 within the last 5 years*.

Over the last five years the ratios for chronic aluminum at three NMED stations are 1/3, 1/3, and 1/3. Ratios for the two USGS stations are 1/14 and 0/4 for the last five years. USGS samples were

collected quarterly and NMED samples were grab samples from various dates. We believe that this is adequate data to support a change in the listing.

1998 ACTION: As per the assessment protocol, one exceedence of the chronic screening level, aluminum will be listed on the 305(b) list as Full Support, Impacts Observed. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION: None

2002 ACTION: Name was changed to remove tribal portions. Only a portion of this reach was studied during the 2000 intensive study. Additional sites are included in the 2001 intensive study.

During the 2000 study, benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. The station below Rio Pueblo de Taos at the USGS gage was 93% of biological reference condition using the Rio Grande at the CO border as the reference station. There were 45% fines at the reference station and 25% fines at the sample station. The reach starts incising into basalt near this location, resulting in very little geologic sediment input at this station compared to the reference site near the Colorado border. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

2004 ACTION: This assessment unit was split at Embudo Creek based on the results of the 2000 URG 1 and 2001 URG 2 surveys. The URG 2 survey included a station immediately above the confluence with Embudo Creek. There was no exceedence of any criterion at this station.

Rio Grande (non-pueblo lands Santa Clara to Embudo Creek)
WQS: 20.6.4.114 AU: NM-2111_10

2004 ACTION: The previous assessment unit was split at Embudo Creek based on the results of the 2000 URG 1 and 2001 URG 2 surveys. This AU includes a one mile stretch between the northern Santa Clara boundary and southern San Juan boundary and additional miles between the northern San Juan Pueblo boundary and Embudo Creek. There were 17 of 24 exceedences of the turbidity criterion of 50 NTU. **Therefore, turbidity will be added as a cause of non support**. Benthic macroinvertebrates were collected downstream of the confluence with Embudo Creek and compared to Taos Junction Bridge. The biological score was 68% of reference. A pebble count was not performed, although the surveyor suspects the large input of sediment from Embudo Creek, roads in Dixon, and the Embudo Station parking lot are contributing to the degradation of the biological community.

Rio Grande del Rancho (Rio Pueblo de Taos to HWY 518)
WQS: 20.6.4.123 AU: NM-2120.A_501

New listing for conductivity turbidity, and stream bottom deposits. There are no ten-year data for turbidity or conductivity. Going back to 1986 there are four data points for conductivity. There are no exceedences of the criteria. Conductivity is fully supporting. There are three data points for turbidity from 1986-87. All values are less than the criteria, the maximum value is 6.2 and the mean value is 2.3 NTU.

1998 ACTION: Turbidity and conductivity are removed from the 1998 303(d) list as causes of non-support. This reach is listed as Partially Supported on the 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The conductivity criterion (400 mS/cm) was exceeded every time it was sampled at Station 21 (maximum = 710 mS/cm). **Thus, this water body is in Non Support for the conductivity standard.**

One exceedence (210/100 mL) of the fecal coliform criterion (200/100 mL) was detected on 01 August at Station 21. **Thus this reach will be listed as Full Support Impacts Observed for the fecal coliform standard.**

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. The sampling station at the USGS gage was 71% of biological reference condition using Rio Hondo a t the USGS gage as the reference station. There were 7 % fines measured at the reference station and there were 33% fines documented at the sampling station. During the analyses, we also compared percent fines at the C4 sampling station to the average percent fines of 16.5 at this Rosgen classification of stream. Therefore, **stream bottom deposits will be removed as a cause of Non Support.**

2004 ACTION: None.

Rio Hondo (Rio Grande to USFS bnd)
WQS: 20.6.4.123 AU: NM-2120.A_600

Previously listed for temperature, pH, total ammonia, and stream bottom deposits. The cumulative ratio of temperature over the last ten years is 0/74. The cumulative ratio of pH measurements over the last ten years is 0/73. The cumulative ratio of measurements for total ammonia over the past ten years is 0/78. The stream bottom deposits listing was for runoff from the ski area parking lot. BMPs have been put into place and the biological score for the station located immediately below the

parking lot in a 1992 survey was 83% of the reference score. Stream bottom deposits should be removed as a cause of nonsupport. The nutrient listing is limited to one station, HON8, which is immediately below the WWTP. The biological assessment shows a high nutrient index at this station. There is an existing TMDL in place on this reach for nutrients.

1998 ACTION: All previously listed parameters have been removed as causes of non-support. This reach has been removed from the 1998 303(d) list.

2000 ACTION: None

2002ACTION: One value for pH (8.92) on 19 October at Station 28 was outside the allowable range (6.6-8.8). However, the proportion of exceedences was such that this reach is listed as **Full Support Impacts Observed for pH.**

The temperature criterion (20°C) was exceeded twice at Station 28 (21.7°C on 31 July; 21.9°C on 01 August). Thus, this water body is in **Partial Support of the temperature standard.** A thermograph will need to be deployed to verify this listing and to generate data for temperature TMDLs if needed.

2004 ACTION: None.

Rio Quemado (Santa Cruz River to headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_52

2004 ACTION: This reach was sampled seasonally only during the 2001 URGII survey. There were 2 of 3 turbidity exceedences. **Therefore, turbidity will be added as a cause of non support.** This reach will be placed in 5C because the turbidity exceedences were likely due to natural causes (i.e., snowmelt runoff and summer thunderstorms) and additional data is needed.

Rio Pueblo (Picuris Pueblo bnd to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_410

Previously listed for turbidity, nutrients and stream bottom deposits. This station was monitored as part of a 1994 Intensive Stream Survey. The aggregated ratio of exceedences for turbidity within the last five years is 1/44 and 0/12 in the 5-10 year interval. A biological assessment was conducted on this reach in 1994. The biological assessment found one station (RP050) to be Full Support, Impacts Observed (78% of reference), while another station (RP25) was partial support (68% of reference) for the fishery use. The Hilsenhoff Biotic Index, which is a measure of organic pollution (i.e. nutrients) for both of these sites indicated that nutrient enrichment was not a problem, (2.56 for RP050 and 2.17 for RP25). The ROD will be revised to reflect this information. This reach will continue to be listed as Partially Supporting with stream bottom deposits as the cause of non-support.

1998 ACTION: Turbidity and nutrients have been removed as a source of non-support for this reach. The reach is included as Partially Supported in the 1998 303(d) report with stream bottom deposits as the cause. **Rename this reach from *Rio Pueblo from the confluence with the Rio Santa Barbara to headwaters* to the above name**.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This stream reach was intensively surveyed during the URGII 2001 survey. Benthic macroinvertebrates bioassessments and concurrent pebble counts were performed at three locations and compared against the Rio Santa Barbara at the Santa Barbara Campground: Rio Pueblo @ HWY 75 near the confl (62% of ref bio score with 12% fines), Rio Pueblo @ HWY 75/518 near gage (68% of ref bio score with 8% fines), and Rio Pueblo near Flechado Campground (90% of ref bio score with no fines data – all cobble). **Therefore, stream bottom deposits will be removed as a cause of non support and benthic macroinvertebrate bioassessments will be added as a cause of non support.**

Rio Pueblo de Taos (Arroyo del Alamo to Rio Grande del Rancho)
WQS: 20.6.4.122 AU: NM-2119_30

Previously listed under "Rio Pueblo de Taos from the mouth on the Rio Grande to Rio Grande del Rancho" and previously listed for temperature, total ammonia, chlorine, and fecal coliform. Temperature is partially supporting at station URG119.023505 with a ratio of 2/10. All other stations show no exceedences of the criteria. For total ammonia, all stations are fully supporting with the exception of station URG119.23515 (5/11) which is not supporting. For fecal coliform, station URG119.023510 (1/1) is full supporting, impacts observed. Station URG119.023525 (2/2) is partially supporting for fecal coliform. Aluminum should be added as Full Support, Impacts Observed at stations URG119.023505 (1/1) and URG119.23525 (1/1) for the chronic screening criteria. Chlorine was removed because the only identified source of chlorine on the reach was the Taos WWTP. We have no ambient chlorine data. The Taos plant has gone to UV disinfection and no longer uses chlorine.

1998 ACTION: Chlorine has been removed as a cause of non-support. The 1998 303(d) list continues to show this reach as Partially Supported with temperature, total ammonia, and fecal coliform as causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The previously listed reach was split into two assessment units. Thermograph data from Station 15 indicate non-support of the temperature standard for this water body, as instantaneous temperature

readings exceeded 23°C (maximum = 28.26°C) and temperature exceeded 20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 48) consecutive days. Therefore, this reach will be listed **Non Support for temperature.**

The fecal coliform criterion (200/100 mL) was exceeded (310/100 mL) on 30 October at Station 15. Six total fecal coliform samples were taken during the 2000 study. Because there were fewer than seven samples, the number of exceedences was such that this reach is **Full Support Impacts Observed for fecal coliform.**

There were 0 of 16 ammonia exceedences. Therefore, **total ammonia will be removed as a cause of Non Support.**

Benthic macroinvertebrates and pebble count data were collected to assess attainment of the narrative stream bottom deposit standard. The sampling station below the Taos WWTP was 43% of biological reference condition using Rio Hondo as the reference station. There were 85% fines documented at the sampling station. Combined geomorphologic and benthic macroinvertebrate data from this reach indicate **Partial Support for stream bottom deposits** due to sediment inputs observed from 1998 through 2000.

2004 ACTION: None. TMDL drafted for SBD and temperature.

Rio Pueblo de Taos (Rio Grande del Rancho to headwaters)
WQS: 20.6.4.123 AU: 2120.A_511

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The conductivity criterion (400 mS/cm) was exceeded for seven of eight samples (maximum = 490.3 mS/cm) at Station 22. Thus, this reach is listed as **Non Support for conductivity**.

Thermograph data from Station 27 indicate non-support of the temperature standard for this water body, as instantaneous temperature readings exceeded 23°C (maximum = 27.23°C) and temperature exceeded 20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 11) consecutive days. Therefore, this reach is listed as **Non Support for temperature**.

The fecal coliform criterion (200/100 mL) was exceeded (270/100 mL) on 30 October at Station 22. Two total fecal coliform samples were taken during the 2000 study. Because there were fewer than seven samples, the number of exceedences was such that this reach is in **Full Support Impacts Observed for fecal coliform.**

2004 ACTION: None

Rio Pueblo de Taos (Rio Grande to Arroyo del Alamo)
WQS: 20.6.4.122 AU: NM-2119_20

Previously listed under "Rio Pueblo de Taos from the mouth on the Rio Grande to Rio Grande del Rancho" and previously listed for temperature, total ammonia, chlorine, and fecal coliform. Temperature is partially supporting at station URG119.023505 with a ratio of 2/10. All other stations show no exceedences of the criteria. For total ammonia, all stations are fully supporting with the exception of station URG119.23515 (5/11) which is not supporting. For fecal coliform, station URG119.023510 (1/1) is full supporting, impacts observed. Station URG119.023525 (2/2) is partially supporting for fecal coliform. Aluminum should be added as Full Support, Impacts Observed at stations URG119.023505 (1/1) and URG119.23525 (1/1) for the chronic screening criteria. Chlorine was removed because the only identified source of chlorine on the reach was the Taos WWTP. We have no ambient chlorine data. The Taos plant has gone to UV disinfection and no longer uses chlorine.

1998 ACTION: Chlorine has been removed as a cause of non-support. The 1998 303(d) list continues to show this reach as Partially Supported with temperature, total ammonia, and fecal coliform as causes of non-support.

2000 ACTION: None

2002 ACTION: This reach was sampled during the 2000 Upper Rio Grande 1 intensive water quality survey. The previously listed reach was split into two. Thermograph data from Station 14 indicate non-support of the temperature standard for this water body, as instantaneous temperature readings exceeded 23°C (maximum = 25.06°C) and temperature exceeded 20°C for more than six consecutive hours in a 24-hour cycle for more than three (maximum interval = 38) consecutive days. Therefore, this reach will be **listed as Non Support for temperature**.

The turbidity criterion (50 NTU) was exceeded (55.8 NTU) on 18 October at Station 14. The proportion of exceedences was such that this water body is in full support of the turbidity standard, but impacts have been observed that warrant close attention during future surveys.

Combined geomorphologic and benthic macroinvertebrate data from this water body indicate full support for stream bottom deposits. Biological condition was 100% of the reference condition at Red River below the Fish Hatchery. There were 17% fines at the reference station and 16% fines at the sampling station, resulting in a 0% increase in fines.

There were 0 of 3 fecal coliform exceedences leading to a listing of **Full Support**.

There were 0 of 14 total ammonia exceedences. Therefore, **total ammonia will be removed as a cause to Non Support.**

2004 ACTION: None

Rio Santa Barbara (Picuris Pueblo bnd to USFS bnd)
WQS: 20.6.4.123 AU: NM-2120.A_419

Listed for stream bottom deposits and metals (Al). At station URG120.022025 there was 1/3 exceedences of the chronic screening criteria for aluminum within the last five years.

1998 ACTION: Aluminum has been removed as a cause of non-support for this reach but will be listed on the 1998 (305) list as Full Support, Impacts Observed. This reach is listed as Partially Supported on the 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was sampled during the 2001 URGII survey. There were 2 of 7 turbidity exceedences. Benthic macroinvertebrate sampling and pebble counts were completed at the station above the Rio del Pueblo and compared to a reference station (Rio Santa Barbara @ gage @ campground). The biological score was 71% of reference with 5% fines. **Therefore, stream bottom deposits will be removed, and turbidity and benthic macroinvertebrate bioassessment will be added as a cause of non support.** Both of the turbidity exceedences were minor (36 and 37 NTUs compared to the criterion on 25 NTUs) and occurred following a summer storm. Additional data is needed to determine if turbidity exceedences were due to natural causes.

Santa Cruz River (San Juan Pueblo to Santa Cruz Dam)
WQS: 20.6.4.114 AU: NM-2111_50

Previously listed for stream bottom deposits and turbidity.

1998 ACTION: The reach will continue to be listed as Not Supported for Stream bottom deposits, turbidity and total phosphorus.

2000 ACTION: The Santa Cruz River from the mouth on the Rio Grande to Santa Cruz Dam was removed from the draft 303(d) list believing that the entire reach was on Santa Clara Pueblo land. New information shows that all but the lower two

miles are on private or BLM land. The Santa Cruz River will be put back on the list with all but the lower two miles as the impaired reach. **The mileage will be adjusted on this reach of the Santa Cruz River to reflect the change.**

There is no longer a water quality standard for total phosphorus for the designated use of high quality coldwater fishery. Therefore, total phosphorus was removed as a cause of impairment. Total phosphorus concentrations will be measured during the Upper Rio Grande Part 2 (2001) intensive study to verify the de-listing.

2002 ACTION: None**.** The name was revised to remove tribal portions. Ten total phosphorus measurements were taken during the 2001 intensive study. Six of these were below the detection limit. Detected concentrations ranged from 0.038 to 0.087 mg/L.

2004 ACTION: This reach was intensively sampled during the 2001 URGII survey. There were 0 of 8 turbidity exceedences. Benthic macroinvertebrates and concurrent pebble count was not collected during the 2001 survey, so there is insufficient data to determine stream bottom impairment according to our current protocol. **Therefore, turbidity will be removed, and stream bottom deposits will remain as causes of non support.** This AU will be categorized as 5C because biological data is needed to verify impairment due to sedimentation.

Tesuque Creek (Little Tesuque Creek to confl of forks)
WQS: 20.6.4.121 AU: NM-2118.A_31

This reach was not listed on the 1996 list. Station URG118.003405 is not supported, 3/9 (33%) for turbidity. Station URG118.003441 is full support.

1998 ACTION: The reach will be listed on the 1998 303(d) list as Not Supporting for turbidity. **Rename this reach from *Tesuque Creek at its confluence with Little Tesuque Creek* to the above reach**

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was surveyed as part of the 2001 URG II survey. There were 3 of 8 exceedences of the turbidity criterion (10 NTU) and 5 of 8 exceedences of the specific conductance criterion (300 umhmos) at the station across from the Tesuque Post office, and 2 of 8 turbidity exceedences and 0 of 8 specific conductance exceedences at the station near Bishop's Lodge. Therefore, **turbidity will be remain a cause of non support and specific conductance**

will be added as a cause of non support. This assessment unit will be listed in category 5b because the tubidity exceedences were minor in magnitude and likely due to natural causes (ie., spring snowmelt).

Tesuque Creek (North Fork)
WQS: 20.6.4.121 AU: NM-2118.A_32

Not on 1996 303(d) list. At two stations from a 1994 survey ratios for total phosphorous were 1/4 and 3/15 (20%). In this survey biological assessments were also conducted. The North Tesuque Creek site was selected as the survey reference site because of its high quality habitat and in-stream characteristics. In this case the biological assessment will override the physical/chemical data.

1998 ACTION: The reach will be added to the 305(b) list as Full Support, Impacts Observed for total phosphorus.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Tesuque Creek (South Fork)
WQS: 20.6.4.121 AU: NM-2118.A_33

Listed for metals (Al) and total phosphorus. The ratio of total phosphorus samples greater than the criteria is 1/10 (10%) for 5-10 year data. 1/3 samples collected in the last five years exceeded the chronic screening criteria for dissolved aluminum. In this reach 1/3 samples collected at various times in 1994 exceeded he chronic screening level for aluminum. A biological assessment was conducted on this reach in 1994. The assessment found the station to be 100% of the reference condition.

1998 ACTION: This reach will be listed on the 1998 305(b) list as Full Support, Impacts Observed for total phosphorous and dissolved aluminum.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None.

Tesuque Creek (Tesuque Pueblo to Little Tesuque Creek)
WQS: 20.6.4.114 AU: NM-2111_31

Previously listed for turbidity, temperature, dissolved oxygen and fecal coliform. There is only one

sample station on this segment, URG111.003305. All data are from a 1994 survey. For turbidity, 0/9 samples exceeded the criteria. For temperature, 1/9 (11%) exceeded the criteria. For dissolved oxygen, 0/9 samples exceeded the criteria. For fecal coliform, 0/3 samples exceeded the criteria.

1998 ACTION: Turbidity, dissolved oxygen, and fecal coliform will be upgraded to Full Support and removed as causes of non-support. The reach will be listed as Full Support, Impacts Observed on the 1998 305(b) list for temperature.

2000 ACTION: None

2002 ACTION: None.

2004 ACTION: None.

Ute Creek (Costilla Creek to headwaters)
WQS: 20.6.4.123 AU: NM-2120.A_821

Not previously listed. Samples collected in 1987 show a 1/4 ratio of exceedences of the total phosphorus criteria.

1998 ACTION: This stream reach will be listed as Full Support, Impacts Observed for total phosphorus on the 1998 305(b) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None.

HUC 13020102 Rio Chama

Abiquiu Creek (Rio Chama to headwaters)
WQS: 20.6.4.116 AU: NM-2113_50

New listing for stream bottom deposits and plant nutrients. We were unable to find documentation to support these listings.

1998 ACTION: The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits and plant nutrients.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 87% fines <2mm (NS). According to the

Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

Plant Nutrients: Plant nutrients will remain listed as a cause of non-support.

Plant nutrients will be retained as a cause of non-support

DO: The exceedence ratio for this reach was as follows: spring 0/4, summer 2/2 and fall 0/2. The cumulative exceedence ratio is 2/8 on this reach. The standard is 6.0mg/l. This reach is partially supporting.

DO will be added to this reach as a cause of non-support

Fecal Coliform: The exceedence ratio for this reach is as follows: spring 1/1, summer 0/1 and fall 0/1. The cumulative exceedence ratio on this reach is 1/3. The standard is 2000/100 ml. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: In order to provide more information for the nutrient assessment protocol, SWQB staff attempted to assess Abiquiu Creek for nutrient impairment in June 2002, but the creek was dry. Staff revisited Abiquiu Creek on July 24th 2002 when there was water flowing in the stream. Level I and Level II assessments were done on this reach of Abiquiu Creek. This survey was conducted during a fairly high flow event, which may have been caused from recent rainstorm events. On July 24, 2002 a data-collecting sonde multi-parameter water analysis probe was also deployed in Abiquiu Creek and programmed to record temperature, DO, conductivity, and pH every fifteen minutes for one full day. Samples for nutrients and major ions, including TDS were also collected, as well as water samples for an algal bioassay. Photodocumentation was also utilized to document visual observations such as riparian condition. Macroinvertebrates using EPA's Rapid Bioassessment Protocols. Results There were no exceedances of nutrient related criteria such as total phosphorus, nitrogen, and pH during this sampling survey on July 24, 2002. Lower than standard levels (< 6.0 mg/L) of dissolved oxygen were found in Abiquiu Creek during summer 1999 and 2002 sampling. High levels of DO were not recorded, and do not indicate high plant productivity levels. The algal bioassay determined that algal productivity on this reach is

moderate. The reach was determined to be nitrogen limited. It appeared that productivity is not a problem on Abiquiu Creek. Results from the macroinvertebrate bioassessment survey in July 2002 indicate good water quality conditions. The HBI (Hilsenhoff biotic index) from the July 2002 samples at the Hwy 84 Bridge indicated good water quality conditions. The value of 5.3 indicated good water quality conditions as it relates to nutrients, with some organic pollution. In 1999, during the REMAP survey at the same site, the HBI value of 4.987 indicated good water quality conditions. At the same location in 1988, the HBI was 4.3625, which indicated very good water quality conditions with possible slight organic pollution. The # of taxa in 2002 (singe count of # of unique taxa) indicated higher taxa richness (33) than from 1988 and 1999 from this site. This metric is an indication of biodiversity, and it generally decreases with degraded habitat or diminished water quality. Based on the above, nutrient overenrichment is determined not to be a cause of nonsupport for this reach.

The Protocol for the Assessment for Stream Bottom Deposits was utilized in this assessment. Data collected in 1999 as part of the Regional Environmental Monitoring and Assistant Program (REMAP) study indicated that Abiquiu Creek is a reference site. Therefore, biological score as a % of reference was 100%. Even though the sediment (as % fines) was somewhat high (87%), the biology was not impaired.

Therefore, plant nutrients and SBD/sedimentation/siltation were removed as a cause of non support. A TMDL was drafted to address dissolved oxygen.

Abiquiu Reservoir
WQS: 20.6.4.117 AU: NM-2114_00

2000 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2002 ACTION: None

2004 ACTION: None

Canjilon Creek (Abiquiu Reservoir to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_030

Previously listed for metals (aluminum), conductivity, turbidity, total phosphorus and stream bottom deposits. All data are from sampling at four stations in 1990. (Stations URG116.010505, 515, 520, 525, 530, and 535). Ratios for aluminum are 0/1, 0/1, 0/0, 0/2, 0/2 and 0/0. Ratios for conductivity are 3/3, 1/3, 0/2, 0/4, 0/4, 0/3 respectively. Ratios for turbidity are 2/3, 0/3, 0/2, 0/4, 0/4, and 0/3. Ratios for total phosphorus are 2/3, 0/3, 0/2, 0/4, 1/3, and 1/3.

1998 ACTION: Aluminum will be removed as a cause of non-support for this reach. Conductivity, turbidity and total phosphorus will be retained as a cause of non-support at the two lower stations. The reach will continue to be listed on the 303(d) list as Not Supporting for Stream Bottom Deposits.

2000 ACTION:

Conductivity: This reach is characterized by two stations. The exceedence ratios are as follows: spring 4/8, summer 4/4 and fall 4/4. The cumulative exceedence ratio for this reach is 12/16. The standard is 500umhos. This reach is not supporting.

Conductivity will remain as a cause of non-support for this reach

Turbidity: This reach is characterized by two stations. The exceedence ratio is as follows: spring 4/8, summer 2/4 and fall 0/4. The cumulative exceedence ratio for this reach is 6/16. The standard is 25NTU. This reach is not supported.

Turbidity will remain as a cause of non-support for this reach

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 21% fines <2mm (FS). According to the Assessment Protocol, this reach is considered fully supporting its designated use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on Canjilon Creek.

Temperature: This reach is characterized by two stations. Two thermographs were deployed and lost on this reach. The exceedence ratio for this reach is as follows: spring 0/8, summer 4/4 and fall 0/4. The cumulative exceedence ratio for this reach is 4/16. This reach is partially supported.

Temperature will be added to this reach as a cause of non-support

DO: This reach is characterized by two stations. The exceedence ratio for this reach is as follows: spring 0/8, summer 2/4 and fall 0/4. The cumulative exceedence ratio for this reach is 2/16. This reach is partially supported. The standard is 6.0mg/l.

DO will be added to this reach as a cause of non-support

Total Organic Carbon (TOC): This reach is characterized by two stations. The exceedence ratio is as follows: spring 1/8, summer 3/4 and fall 3/3. The cumulative exceedence ratio for this reach is 7/15. The standard is 7mg/L. This reach is not supported.

TOC will be added to this reach as a cause of non-support

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: According to SWQB staff comments, USFS correspondence, and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to high quality coldwater fishery, so they do not apply to this reach.

2004 ACTION: None

Cañones Creek (Abiquiu Reservoir to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_010

Listed for metals (aluminum), total phosphorus and turbidity. The ratio for aluminum data is 1/1 for acute levels of aluminum. Total phosphorus and turbidity data both have ratios of 5/5. This reach was included in a 1991 biological survey and was rated as only 36% of the reference site. The site had a degraded habitat as a result of loss of riparian habitat, irrigation return flows, and impacts from the community of Cañones.

1998 ACTION: This reach is listed as Not Supporting designated uses with aluminum, total phosphorus, and turbidity as the cause.

2000 ACTION:

Temperature: Two thermographs were deployed on this reach. The upper thermograph exceeded the HQCWF criterion 19/3,984 times with a maximum temperature of 26.19°C. This site exceeded the Temperature Protocol for the one-time maximum exceedence of 23°C. The thermograph at the lower station at HWY 64 did not exceed the Temperature Protocol.

Temperature will be added as a cause of non-support for this reach

Turbidity: This reach is characterized by two stations. Exceedence ratios are as follows: spring 0/8, summer 2/4 and fall1/4. The cumulative exceedence ratio for this reach is 3/16. The standard is 25NTU.

Turbidity will be retained as a cause of non-support

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Total Organic Carbon (TOC): This reach is characterized by two stations. The exceedence ratio is as follows: spring 2/8, summer 0/4 and fall 3/4. The cumulative exceedence ratio for this reach is 5/16. The standard is 7mg/L. This reach is not supported.

TOC will be added as a cause of non-support on this reach

Fecal Coliform: The exceedence ratio for this reach is as follows: spring 1/1, summer 1/1 and fall 0/1. The cumulative exceedence ratio for this reach is 2/3. The standard is 200/100ml.

Fecal coliform will be added as a cause of non-support on this reach

Metals (Al chronic): For the spring run, the 4-day average was 167.5ug/l of dissolved aluminum. The chronic criterion is 87ug/l.

Metals (Al chronic) will be retained as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a

higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

The thermograph data collected at the upper station during the 1999 study was re-assessed. Closer inspection of the exceedences indicates that the thermograph was out of the water during the period of exceedence because the there was a steep spike in the recorded temperature up the ambient air temperature, then a steep decrease in temperature at the end of the brief period. Benthic macroinvertebrate data collected at this site does not indicate impairment. The thermograph at the lower station did not indicate impairment and did not exceed the Temperature Protocol. Therefore, **temperature was removed as a cause of Non Support.**

2004 ACTION: TMDLs were drafted for turbidity, aluminum, and fecal coliform.

Cecilia Canyon Creek (Rio Capulin to USFS bnd)
WQS: 20.6.4.119 AU: NM-2116.A_042

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Cecilia Canyon Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 40% fines <2mm (PS) and an embeddedness of 30%(FS). According to the Assessment Protocol, this reach is considered partially supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support

2002 ACTION: None

2004 ACTION: None

Chavez Creek (Rio Brazos to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_081

2000 ACTION:

Temperature: One thermograph was deployed on this reach The thermograph was deployed on Chavez Creek at the Hwy 512 bridge and exceeded the HQCWF criterion 160/864 times with a maximum temperature of 26°C.

Temperature will be added as a cause of non-support for this reach of Chavez Creek

Stream Bottom Deposits: Non-permitted stream modifications were carried out on this reach of Chavez Creek and stream bottom deposits have been documented. This reach will be listed in the 305(b) Report as Full Support, Impacts Observed until more data can be collected.

Add to the 305(b) report as FSIO.

Turbidity: Non-permitted stream modifications were carried out on this reach of Chavez Creek. This reach will be listed in the 305(b) Report as Full Support, Impacts Observed until more data can be collected. The exceedence ratio was 1/8.

Add to the 305(b) report as FSIO.

Total Phosphorus: Non-permitted stream modifications were carried out on this reach of Chavez Creek. This reach will be listed in the 305(b) Report as Full Support, Impacts Observed until more data can be collected. The exceedence ratio was 1/3.

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: The Nutrient Assessment protocol was performed June 2000. This reach was determined to be nutrient enriched following the level one nutrient assessment analysis. A level two analyses is in process at the time of this writing. A summary of the nutrient assessment is in the administrative record. **Plant Nutrients was added as a cause of non-support.**

2004 ACTION: Plant nutrients was prematurely listed in 2002 based on only a level one analysis. Subsequent level two analysis did not indicate plant nutrient impairment (the algal level was moderately productive). Therefore, **plant nutrients was removed as a cause of impairment. A TMDL was written for temperature.**

Chihuahuenos Creek (Cañones Creek to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_016

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Chihuahuenos Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 54% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 1/2. The cumulative exceedence ratio for this reach is 1/8. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 93% of reference, the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines are somewhat high

(57%). **Therefore, SBD/sedimentation was removed.**

Clear Creek (Rio Gallina to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_043

Previously listed for stream bottom deposits and turbidity. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Clear Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 51% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use do to the high level of fines

Stream bottom deposits will be retained as a cause of non-support

2002 ACTION: None

2004 ACTION: None

Coyote Creek (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_022

Listing based on 5/5 exceedences for total phosphorus and turbidity. A biological assessment was conducted on Coyote Creek in 1991. The station was found to be NS (56%) as compared to the reference station.

1998 ACTION: This reach will be listed as Not Supported with total phosphorus and turbidity as causes.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 39% fines <2mm (PS). According to the Assessment Protocol, this reach is considered

partially supporting its designated use.

Stream bottom deposits will be added as a cause of non-support

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Coyote Creek.

Temperature: The exceedence for this reach is as follows: spring 0/4, summer 1/2, and fall 0/2. The cumulative exceedence ratio on this reach is 1/8. The standard for this reach is 20°C. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

Total Organic Carbon (TOC): The exceedence ratio for this reach is as follows: spring 4/4, summer 0/2 and fall 2/2. The cumulative exceedence ratio for this reach is 6/8. The standard is 7mg/L. This reach is not supported.

TOC will be added as a cause of non-support on this reach

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC will be**

removed as a cause of Non Support.

2004 ACTION: The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 100% of reference (the site on this creek is considered to be reference condition), the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines are somewhat high (39%). **Therefore, SBD/sedimentation was removed.**

El Rito Creek (Perennial reaches above El Rito)
WQS: 20.6.4.115 AU: NM-2112.A_20

Previously listed for turbidity, stream bottom deposits and nutrients. Turbidity data from a 1990 survey is the only available data. Ratios for turbidity were 1/1, 1/1, and 0/1. No specific data is available for the causes stream bottom deposits and nutrients.

1998 ACTION: Turbidity will be listed as Full Support, Impacts Observed on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits and plant nutrients.

2000 ACTION:

Plant Nutrients: Plant nutrients will remain listed as a cause of non-support.

Plant nutrients will be retained as a cause of non-support

Turbidity: Field data show an exceedence ratio of 2/8 for turbidity on this reach. The standard is 10NTU.

Turbidity will be added to this reach as a cause of non-support

Stream Bottom Deposits: Two stations were used to evaluate this reach. The upper station, near the headwaters, had 18% fines <2mm (FS). The lower station, above the Town of El Rito, had 7% fines <2mm (FS). According to the Assessment Protocol, this reach is considered fully supporting its designated use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on El Rito Creek.

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/2, summer 0/2 and fall 1/2. The cumulative exceedence

ratio for this reach is 1/6. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: **Turbidity was removed as a cause of Non Support** after re-evaluation of the data and collection of additional sonde data. The two exceedences from the 1999 survey were within the analytical error of the instrumentation, the narrative turbidity standard was not exceeded, and a qualitatative assessment of the benthic macroinvertebrate population indicated no impairment. Quantitative benthic macroinvertebrate samples were taken during 2002. Identification, enumeration, and analyses are in progress. An YSI multi-parameter sonde was deployed between 06/10/02 17:00 to 06/12/02 08:45. Turbidity samples were logged every 15 minutes. The mean value was 5.7 NTUs. The turbidity standard of 10 NTU was exceeded 4 times out of 172 readings (2.3%).

For the spring 1999 run, the 4-day average was 363 ug/l of dissolved aluminum. The chronic criterion is 87ug/l. The criterion was not exceeded during the summer or fall runs. Therefore, this AU is Full Support for aluminum. This data was erroneous apply to the reach El Rito below El Rito during the 2000 assessment cycle.

2004 ACTION: A level 2 Plant Nutrient Assessment was performed June 2002. Results indicated no impairment. **Therefore, plant nutrients was removed as a cause of impairment.**

El Rito Creek (Perennial reaches below El Rito)
WQS: 20.6.4.116 AU: NM-2113_40

2000 ACTION:

Metals (Al chronic): For the spring run, the 4-day average was 536.25ug/l of dissolved aluminum. The chronic criterion is 87ug/l.

A new listing will be added for metals (Al chronic) for this reach

2002 ACTION: According to SWQB staff comments and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to high quality coldwater fishery, so they do not apply to this reach. Also, the above listing for aluminum was erroneous anyway because the data pertained to the upper reach, and assessment of the data indicated full support (see above).

2004 ACTION: None.

El Vado Reservoir
WQS: 20.6.4.120 AU: NM-2117_00

1998 ACTION: **Not listed**

2000 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2002 ACTION: None

2004 ACTION: None

Heron Reservoir
WQS: 20.6.4.120 AU: NM-2117_10

2000 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2002 ACTION: None

2004 ACTION: None

Hopewell Lake
WQS: 20.6.4.115 AU: NM-2112.B_00

1998 ACTION: **Not listed**

2000 ACTION:

Hopewell Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** by high pH (>9.0 in the summer photic zone) moderate temperature stratification and hypolimnetic dissolved oxygen depletion during the summer. Phosphorus concentrations increased during the fall as chlorophyll a concentrations declined. Macrophytes covered approximately 25% of the lake bottom during the summer and fall. The algal population was dominated by a blue-green algae. Phosphorous was limiting or co-limiting.

Although the data for this reservoir is dated, it is still listed in the State's 305(b) Report as impaired for pH, dissolved oxygen, turbidity, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: Hopewell Lake was intensively surveyed in 1999. **Data indicate Full Support for pH (0/1), dissolved oxygen (0/8), and turbidity (0/1).** Hopewell Lake will continue to be listed for plant nutrients and bottom deposits until further study.

2004 ACTION: None

Nabor Creek (Rio Chamita to CO border)
WQS: 20.6.4.119 AU: NM-2116.A_111

Previously listed for total phosphorus and total ammonia. One station is on the reach (URG116.020040). Total phosphorus data indicate Full Support, Impacts Observed for the fishery use (1/4). Total ammonia data indicate full support for the fishery use (0/4).

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. Total phosphorus will be upgraded to Full Support, Impacts Observed and will be listed on the 1998 305(b) report.

2000 ACTION:

Total Phosphorus: There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for all parameters on Nabor Creek.

2002 ACTION: None

2004 ACTION: None

Poleo Creek (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_023

Listing based on one station at Forest Road 103 (URG116.010050, 1991 data). Total phosphorus and turbidity data, 4/5 and 5/5, exceed the criteria values. All other parameters are below criteria values.

1998 ACTION: This reach will be listed as Not Supported with total phosphorus and turbidity as causes.

2000 ACTION:

Total Phosphorus: Total phosphorus no longer has a standard associated

with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Turbidity: The exceedence ratio on this reach is as follows: spring 4/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio on this reach is 5/8. The standard is 25 NTU. This reach is not supported.

Turbidity will be retained as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 1/2 and fall 2/2. The cumulative exceedence ratio for this reach is 3/8. This reach is not supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

Polvadera Creek (Cañones Creek to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_011

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: Field data show an exceedence ratio of 0/6 for turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on Polvadera Creek.

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 71% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

Temperature: The exceedence ratio on this reach is as follows: spring 0/4, summer 2/2 and fall 0/2. The cumulative exceedence ratio on this reach is 2/8. This reach is partially supported.

Temperature will be added to this reach as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 1/2. The cumulative exceedence ratio for this reach is 1/8. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 67% of reference, the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines are somewhat high (71%). **Therefore, SBD/sedimentation was removed.** 2002 thermograph confirmed temperature listing and a TMDL was drafted. Temperature is assumed to be the cause of benthic macroinvertebrate impairment.

Rio Brazos (Rio Chama to Chavez Creek)
WQS: 20.6.4.119 AU: NM-2116.A_080

Previously listed for temperature, turbidity, chlorine, nutrients and stream bottom deposits. One sampling station is on the reach (URG116.008005). Data for temperature and turbidity are 0/2.

Total residual chlorine data is 1/1 exceedences from 1986 data however there are no known sources of chlorine on this reach. A review of data related to the nutrients listing show that total phosphorus values at this station are well below the criteria of 0.1 mg/l and nitrate levels are also low with levels reported as less than 0.04 mg/l. No specific reason for the previous listing can be found.

1998 ACTION: Temperature, turbidity, chlorine, and nutrients will be removed as causes of non-support for this reach. Chlorine will be listed as Full Support, Impacts Observed on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Temperature: Two thermographs were deployed on this reach. The upper thermograph was deployed above Corkins Lodge and did not exceed the HQCWF criterion. The lower thermograph was deployed at the Rio Brazos and Hwy 84 bridge and exceeded the HQCWF criterion 463/1,752 times with a maximum temperature of 27°C.

Temperature will be added as a cause of non-support for the lower section (Rio Brazos at Highway 84 bridge) of the Rio Brazos

Stream Bottom Deposits: This reach has been highly modified by highway construction. The natural substrate has been replaced with rounded stones of an almost homogenous size. Although this substrate has been highly modified, it does not have signs of heavy sediment load.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the lower Rio Brazos.

2002 ACTION: None

2004 ACTION: A TMDL was prepared for temperature.

Rio Cebolla (Rio Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_050

2000 ACTION:

Conductivity: The exceedence ratio on this reach is as follows: spring 0/1, summer 1/1 and fall 1/1. The cumulative exceedence ratio on this reach is 2/3. The standard is 500 umhos. This reach is not supporting.

Conductivity will be added to this reach as a cause of non-support.

Temperature: The exceedence ratio for this reach is as follows: spring 0/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio on this reach is 1/8. The standard is 20°C. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: According to SWQB staff comments, USFS correspondence, and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to high quality coldwater fishery, so they do not apply to this reach.

2004 ACTION: None.

Rio Chama (Rio Brazos to Little Willow Creek)
WQS: 20.6.4.119 AU: NM-2116.A_002

Previously listed for total phosphorus, total ammonia, turbidity, chlorine and stream bottom deposits. Data ratios for total phosphorus are 0/10 from a 1988 survey. No more current data is available. Data ratios for total ammonia are 0/10 from the same survey. Data ratios for turbidity are also 0/10 from the same survey. Total residual chlorine data from 1986 was 1/1 at stations URG116.019550 and URG116.020505. There are no sources of chlorine on this segment although it would receive impacts from the Rio Chamita that did have chlorine impacts from this time period.

The Chama WWTP has however begun dechlorination since this time and no exceedences have been reported within the last 5 years.

1998 ACTION: The total phosphorus, total ammonia and turbidity will be removed as causes of non-support for this reach. As per the assessment protocol the reach will be listed as Full Support- Impacts Observed on the 1998 305(b) list with chlorine as a cause. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Stream Bottom Deposits: This reach is characterized by one station below the Village of Chama. The % fines <2mm was measured at <1%. This reach is assessed as having a fully supporting substrate. An additional station just outside of this reach had a % fines <2mm at 5%.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the Rio Chama.

Metals (Al Chronic): A 4-day average of 113ug/l was observed during spring. No detectable aluminum was seen during summer and fall sampling. The value is within the error range for aluminum analyses. This will not be listed as not supporting but will be listed as Full Support, Impacts observed in the 305(b) Report.

Add to the 305(b) report as FSIO.

Temperature: Two thermographs were deployed on this reach. The upper thermograph was deployed under the HWY 17 bridge and did not exceed the HQCWF criterion. The lower thermograph was deployed at the Rio Chama and Hwy 84 fishing access and exceeded the HQCWF criterion 363/1,704 times with a maximum temperature of 26°C.

Temperature will be added as a cause of non-support for the lower section (Highway 84 fishing access) of the Rio Chama

2002 ACTION: None

2004 ACTION: A TMDL was prepared for temperature.

Rio Chama (San Juan Pueblo to Abiquiu Dam)
WQS: 20.6.4.116 AU: NM-2113_00

Previously listed for turbidity, pH, dissolved oxygen, unionized ammonia, nutrients and stream bottom deposits. There are no numeric turbidity criteria for this reach. pH data is available at two stations in the 0-5 year interval ratios at these stations are 0/70 and 0/9. Data in the 5-10 year interval is available from six stations with ratios of 0/20, 0/6, 2/6, 2/6, 2/8, and 0/7. Data for dissolved oxygen from two stations within the last 5 years has a cumulative ratio of 0/79. Data from 5-10 years has a cumulative ratio of 0/50. Total ammonia data is available from one station in the last five years with a ratio of 0/9. Five stations have data for total ammonia in the 5-10 year time frame.

The ratios at these stations are 0/6, 1/6, 0/7, 0/8, and 0/7. In the only station with a criteria exceedence, a three day average was calculated. This 3-day average did not exceed the chronic criteria. During the data review for this reach it was noted that there had been 1/10 (10%) acute exceedence of the dissolved aluminum criteria.

1998 ACTION: Turbidity, dissolved oxygen, and unionized ammonia have been removed as

causes of non-support. This reach will be listed as Full Support, Impacts Observed for aluminum on the 1998 305(b) list. No data either to support listing or de-listing can be found for nutrients. There is no numeric turbidity criteria for this reach therefore turbidity will be removed. pH data is available at two stations in the 0-5 year interval ratios at these stations are 0/70 and 0/9. Data in the 5-10 year interval is available from six stations with ratios of 0/20, 0/6, 2/6, 2/6, 2/8, and 0/7. This reach is Partially Supporting for pH. Data for dissolved oxygen from two stations within the last 5 years has a cumulative ratio of 0/79. Data from 5-10 years has a cumulative ratio of 0/50. This reach is fully supporting for dissolved oxygen. Total ammonia data is available from one station in the last five years with a ratio of 0/9. Five stations have data for total ammonia in the 5-10 year time frame. The ratios at these stations are 0/6, 1/6, 0/7, 0/8, and 0/7. In the only station with a criteria exceedence, a three day average was calculated. This 3-day average did not exceed the chronic criteria. This reach is Full Support for total ammonia. During the review for this reach it was found that there had been 1/10 (10%) acute exceedence of the dissolved aluminum criteria. This reach will be listed as Full Support, Impacts Observed for aluminum on the 1998 305(b) list. No data either to support listing or de-listing can be found for nutrients. The reach will continue to be listed on the 303(d) list as Partial Support for nutrients and pH.

2000 ACTION:

Plant Nutrients: There were no exceedences of the plant nutrient criteria on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for plant nutrients on this reach of the Rio Chama.

pH: This reach is characterized by three stations. Exceedence ratios are as follows: spring 0/12, summer 1/6 and fall 0/6. The cumulative exceedence ratio is 1/24. This reach is fully supporting.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on this reach of the Rio Chama.

DO: This reach is characterized by three stations. The exceedence ratios on this reach are as follows: spring 0/12, summer 1/6 and fall 2/6. The cumulative exceedence ratio on this reach is 3/24. The standard is 6.0mg/l. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO

Metals (Al chronic): For the summer run, the 4-day average was 410ug/l of

dissolved aluminum. The chronic criterion is 87ug/l.

Metals (al chronic) will be added as a cause of non-support for this reach of the Rio Chama

Unknown: No unknown constituents were detected in this survey.

Unknown will be removed as a cause of non-support

2002 ACTION: None. The name was revised to remove sections of the reach that are under tribal jurisdiction.

2004 ACTION: None

Rio Chamita (Rio Chama to CO border)
WQS: 20.6.4.119 AU: NM-2116.A_110

Listed for temperature, turbidity, total phosphorus, total ammonia, chlorine, fecal coliform and stream bottom deposits. There are five stations on this reach with data within the last 12 years: URG116.020005, URG116.020015, URG116.020035, URG116.020045 and URG116.020055. Ratios for temperature at these stations are 5/13, 3/12, 2/10, 1/1, and 1/4 respectively. Ratios for turbidity are 0/5, 0/5, 0/5, 0/1, and 3/3 respectively. Ratios for total phosphorus are 14/14, 5/14, 1/11, 1/3, and 1/1. Ratios for total ammonia are 11/11, 3/11, 5/10, 0/3, and 0/1 respectively. Chlorine data is available at stations 0005, 0015 and 0035, 1/1, 1/1, and 1/1 for the 5-10 year period. Ratios are 0/1 and 0/1 for the last 5 years. The Chama WWTP has begun dechlorination prior to discharge. Fecal coliform data is also available only from these three stations. Ten year ratios are 0/2, 0/2, and 2/2 for these stations.

1998 ACTION: Station 0005 will be listed as Not Supported with temperature as the cause. Turbidity data indicate that the fishery use is not supported at station URG116.020055 and full support at stations URG116.020005, URG116.020015, and URG116.020035. Total phosphorus data indicate the fishery use is not supported at stations URG116.020005 and URG116.020015, Full Support, Impacts Observed for station URG116.020055, and full support at station URG116.020035. Total ammonia data indicate that the fishery use is not supported at stations URG116.020005, URG116.020015 and URG116.020035, while it is full support at station URG116.020055. Fecal coliform data indicate full support of the contact recreation use at stations URG116.020005 and URG116.020015 and will be listed as Full Support, Impacts Observed at station URG116.020035 on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION

Temperature: Thermographs on this reach were deployed from July 20 through October 1, 1998. HQCWF temperature criteria were exceeded at all three thermograph sites. The upper site exceedence ratio was 71/1,752. This site exceeded the draft Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days at 20°C. The middle site 173/1,751 with a one-time maximum temperature exceedence of 23.5°C and the lower site 254/1,750 with a one-time maximum temperature exceedence of 24.5°C.

A TMDL was developed for the Rio Chamita to address temperature.

Turbidity: Turbidity samples at all three stations on this reach were 0/9, 1/9 and 0/9 respectively. There is not impairment by turbidity on this reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Rio Chamita.

Stream Bottom Deposits: Two stations were evaluated along this reach. The station above the WWTP in Chama has 16% fines <2mm. The station below Sexto Creek had 24% fines <2mm. Each of these stations would be considered as having supportive bottom substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the Rio Chamita.

Total Phosphorus: There were four stations on this reach. The uppermost station above Sexto Creek was 4/4 for TP but data is not representative due to no flow coming from the Colorado side of the border. The middle two stations were both 0/4 and the station below the WWTP was 6/6 for TP. Nonpoint source impacts are considered minimal but a load allocation of 1.1 lbs./day in the upper watershed has been calculated due to the documented exceedences.

The TMDL was developed for the reach below the WWTP to the confluence with the Rio Chama on the Rio Chamita to address total phosphorus.

Total Ammonia: There were four stations on this reach. The stations above the WWTP were 0/7, 0/8 and 0/8. The station below the WWTP was 4/8 for total ammonia. Exceedences were of the 4-day

chronic criteria during Fall low flow conditions. No acute exceedences were documented.

A TMDL was developed for the reach below the WWTP on the Rio Chamita to address total ammonia.

Fecal Coliform: Two fecal coliform samples from this reach below the WWTP were both above the criterion. Fecal coliform will be added and listed as not supporting the designated use on this reach. The Village of Chama has fecal coliform limits in their current NPDES permit.

A TMDL was developed for the reach below the WWTP on the Rio Chamita to address fecal coliform.

Chlorine: Because of significant interference under ambient conditions, no in-stream chlorine measures were collected. The Village of Chama has dechlorination requirements in their current NPDES permit with a daily monitoring provision. A review of the submitted Discharge Monitoring Report (DMR) data shows full compliance at this time.

Pursuant to 40 CFR 130.7(b)(1)(ii), a TMDL is not required if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such waters. The Village of Chama has dechlorination requirements in their current NPDES permit with a daily monitoring provision. A review of the submitted Discharge Monitoring Report (DMR) data shows full compliance at this time.

Metals (Al chronic): Samples at the station just above and below the WWTP exceeded the 4-day chronic values for aluminum during spring sampling. The 4-day average for the upstream station was 93 ug/l and below the WWTP the 4-day average was 145ug/l of dissolved aluminum. The chronic criterion is 87ug/l. Aluminum was not detected in samples collected during the summer and fall seasons. The measured value for the upstream station is within sampling and analytical error range (+/- 23 with maximum exceedence value being 110ug/l).

A new listing will be added for metals (Al chronic) below the WWTP

Total Organic Carbon (TOC): TOC greater than the criterion (7mg.l) was found in 4/8 samples from the station above Sexto Creek (large wetland). During the summer and fall months, irrigation withdrawals in Colorado are such that there

is no flow in this reach. The area becomes a stagnant pool and decaying detritus causes the TOC to increase. The impact to the fishery is from flow regulation and natural biological functions

2002 ACTION: The 303(d) list was corrected to include total ammonia and fecal coliform as causes of impairment. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

In 2000, the total phosphorus standard for HQCWF was removed. Subsequently, total phosphorus listings were changed to the narrative "plant nutrient" listing and these waters were assessed based on the Nutrient Assessment Protocol. SWQB conducted field assessments on the Rio Chamita on July 18, 2000. The Rio Chamita was determined not to be nutrient enriched following the level one nutrient assessment analysis. Additional information can be found in the administrative record.

2004 ACTION: TMDL was approved for aluminum.

Rio del Oso (Rio Chama to headwaters)
WQS: 20.6.4.115 AU: NM-2112.A_10

Previously listed for stream bottom deposits, turbidity, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION:

Turbidity: The exceedence ratio for this reach is as follows: spring 1/4, summer 2/2 and fall 0/2. The cumulative exceedence ratio on this reach is 3/8. The standard is 10NTU. This reach is not supported.

Turbidity will be retained as a cause of non-support

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 95% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

Temperature: The exceedence ratio on this reach is as follows: spring 0/4, summer 2/2 and fall 0/2. The cumulative exceedence ratio on this reach is 2/8. This reach is partially supporting.

Temperature will be added to this reach as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 2/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially supporting.

TOC will be added as a cause of non-support

DO: The exceedence ratio for this reach is as follows: spring 0/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio for this reach is 1/8. The standard is 6.0mg/l. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: According to SWQB staff comments and data from the REMAP study, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are not effect these two uses, so they do not apply to this reach. Also, the TOC standard was removed from the New Mexico Water Quality Standards in 2002.

004 ACTION: None

Rio Gallina (Rio Capulin to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_040

Previously listed for turbidity, nutrients and stream bottom deposits. Turbidity data indicate full support of the criteria with a 0/5 ratio. Total phosphorus data have a ratio of 2/5.

1998 ACTION: Turbidity is removed as a cause of non support for this reach. Total phosphorus is added as a cause of non-support. Because it is likely that the nutrients listing is related to the total phosphorus listing, nutrients will no longer be listed as a cause of non-support. The reach will continue to be listed on the 303(d) list as Not Supporting for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: Two stations were used to evaluate this reach. The upper station, at the headwaters, had 44% fines <2mm (NS). The lower station, at Skull Ranch, had 88% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

2002 ACTION: None

2004 ACTION: None

Rio Nutrias (Rio Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_060

2000 ACTION:

Turbidity: The exceedence ratio for this reach is as follows: spring 1/4, summer 1/2 and fall 1/2. The cumulative exceedence ratio for this reach is 3/8. The standard is 25 NTU. This reach is not supported.

Turbidity will be added to this reach as a cause of non-support

Temperature: The exceedence ratio for this reach is as follows: spring 0/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio on this reach is 1/8. The standard is 20°C. The reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: TMDL was drafted for turbidity.

Rio Ojo Caliente (Rio Chama to Rio Vallecitos)
WQS: 20.6.4.116 AU: NM-2113_10

Previously listed for turbidity and stream bottom deposits. There are no numeric turbidity criteria for this warmwater fishery.

1998 ACTION: Turbidity will be removed as a cause of non-support. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 42% fines <2mm (NS) and an embeddedness of 54%(NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

STREAM BOTTOM DEPOSITS WILL BE RETAINED AS A CAUSE OF NON-SUPPORT FOR THIS REACH

Temperature: The exceedence ratio for this reach is as follows: spring 0/4, summer 1/2 and fall 0/2. The cumulative exceedence ratio for this reach is 1/8. The standard is 31°C.

Add to the 305(b) report as FSIO.

pH: The exceedence ratio for this reach is as follows: spring 1/4, summer 0/2 and fall 0/2. The cumulative exceedence ratio for this reach is 1/8. The standard is 6.6 to 8.8. The one exceedence was 9.65. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

Metals (Al chronic): For the spring run, the 4-day average was 362.5ug/l of dissolved aluminum. The chronic criterion is 87ug/l.

Metals (al chronic) will be added as a cause of non-support for this reach

2002 ACTION: None

2004 ACTION: Rio Ojo Caliente is not perennial at the point where the samples used to make a prior determination of impairments were collected. This finding removes Rio Ojo Caliente from the criteria of 20.6.4.116 NMAC, which apply to perennial reaches. It is the determination by NMED that applicable standards for these non-perennial portions are subject to criteria protecting the uses of livestock watering and wildlife habitat, which the Water Quality Control Commission (WQCC) applies to all waters. The metals standards for the livestock watering and wildlife habitat designated uses were not violated on this reach. The Rio Ojo Caliente data does not violate water quality standards for metals (Al) and should be removed from the 2002-2004 303(d) list. **Therefore, aluminum was removed as a cause of non support**. NMED reiterates that standards applicable to 20.6.4.116 NMAC do apply to all perennial reaches of the Rio Ojo Caliente.

The original SBD/sedimentation assessment of the 1999 data was performed incorrectly. Because the biological score was 100% of reference (the site on this creek is considered to be reference condition), the determination is full support according to the Stream Bottom Deposit Assessment Protocol even thought the percent fines were somewhat high (42%). **Therefore, SBD/sedimentation was removed as a cause of non support.**

Rio Puerco de Chama (Abiquiu Reservoir to Poleo Creek)
WQS: 20.6.4.119 AU: NM-2115_20

2000 ACTION:

Temperature: The thermograph that was deployed at Youngsville was lost. The exceedence ratio for this reach is as follows: spring 0/4 summer 2/2 and fall 0/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially supported.

A new listing will be added for temperature on this reach of the Rio Puerco de Chama

Fecal Coliform: The exceedence ratio for this reach is as follows: spring 1/1, summer 1/1 and fall 0/1. The cumulative exceedence ratio for this reach is 2/3. The standard is 400/100ml.

Fecal coliform will be added as a cause of non-support on this reach of the Rio Puerco de Chama

DO: The exceedence ratio for this reach is as follows:

spring 0/4, summer 0/2 and fall 1/2. The cumulative exceedence ratio for this reach is 1/8.

Add to the 305(b) report as FSIO.

2002 ACTION: None

2004 ACTION: None

Rio Puerco de Chama (Poleo Creek to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_020

Listed for total ammonia, total phosphorus and stream bottom deposits. Total ammonia and total phosphorus data from one station (URG116.010040) in 1991 indicate the fishery use is full support as there were no exceedences of criteria.

1998 ACTION: Total ammonia and total phosphorus will be removed as a cause of non-support. The reach will continue to be listed on the 303(d) list as Partial Support for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: No data was collected to either verify or remove this listing.

Stream bottom deposits will be retained as a cause of non-support

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/1, summer 1/1 and fall 1/1. The cumulative exceedence ratio for this reach is 2/3. This reach is not supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted

use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

Rio Tusas (Rio Vallecitos to the headwaters)
WQS: 20.6.4.116 AU: NM-2113_20

Listed for turbidity and stream bottom deposits. There are no numeric turbidity criteria for this warmwater fishery.

1998 ACTION: Turbidity will be removed as a cause of non-support for this reach. The reach will continue to be listed on the 303(d) list as Partial Support for Stream Bottom Deposits.

2000 ACTION:

Stream Bottom Deposits: Two stations were used to evaluate this reach. The upper station, above Las Tablas, had 39% fines <2mm (PS). The lower station, at Madera, had a biological score of 71% of reference, and had 67% fines <2mm (NS). According to the Assessment Protocol, this reach is considered not supporting its designated use.

Stream bottom deposits will be retained as a cause of non-support for this reach

2002 ACTION: None.

2004 ACTION: None.

Rio Vallecitos (Rio Tusas to headwaters)
WQS: 20.6.4.115 AU: NM-2112.A_00

Listed for metals (copper and zinc acute, aluminum chronic), temperature, total phosphorus, turbidity and stream bottom deposits. Data is available from six stations on this reach. For copper, zinc, and aluminum 1/1 exceedence is noted at station 6029 that is identified as being immediately below a gypsum mine drain. All other stations have a cumulative ratio of 0/10 for each parameter. Temperature at the stations is 1/3 for both downstream stations and 0/10 at the upstream stations. For total phosphorus the ratios are 1/1 and 1/3 at the two stations immediately below the mine and 0/12 for all others. Turbidity is variable throughout with ratios of 0/1, 0/1, 1/1, 1/1, 1/1, and 0/1.

1998 ACTION: Because the impacts noted were attributable to a □point source these minimal

data sets will be considered sufficient to cause Partially Supporting listing for aluminum, copper, and zinc. The reach will be listed as Full Support, Impacts Observed for temperature, total phosphorus, and turbidity on the 1998 305(b) list. The reach will continue to be listed on the 303(d) list as Partial Support for stream bottom deposits.

2000 ACTION:

Temperature: Two thermographs were deployed on this reach. The upper thermograph exceeded the HQCWF criterion 80/3,030 times with a maximum temperature of 22.46°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days. The lower thermograph exceeded the HQCWF criterion 413/3,031 times with a maximum temperature of 24.53°C. This site exceeded the Temperature Protocol for the one-time maximum exceedence of 23°C.

Previously listed in the 305(b) report as full support, impacts observed, temperature will be added as a cause of non-support for this reach

Metals (Al chronic): There are two stations on this reach. For the spring run, the 4-day average at the upper station was 750ug/l of dissolved aluminum while the lower station had a 4-day average of 555ug/l. The chronic criterion is 87ug/l.

Metals (Al chronic) will be retained as a cause of non-support

Metals (Al acute): In the spring run, the upper station on this reach had an exceedence ratio of 2/4 (900ug/l) of the acute criteria for dissolved Al. The summer run had an exceedence ratio of 0/4 and the fall run also had an exceedence ratio of 0/4. The acute criterion for this reach is 750ug/l. The cumulative exceedence ratio for this reach is 2/12 that makes it partially supporting.

Metals (Al acute) will be retained as a cause of non-support

Turbidity: This reach is characterized by two stations. The exceedence ratio for this reach is as follows: spring 8/8, summer 0/4 and fall 0/4. The cumulative exceedence ratio for this reach is 8/16. The standard for this reach is 10NTU. This reach is not supported.

Turbidity will be added as a cause of non-support for this reach

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 10% fines <2mm (FS) and an embeddedness of 33% (FS). According to the Assessment Protocol, this reach is considered fully supporting its designated use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the Rio Vallecitos.

Total Phosphorus: Listed as FSIO in the 1998 assessment, there is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Total Organic Carbon (TOC): This reach is characterized by two stations. Exceedence ratios are as follows: spring 0/8, summer 0/4 and fall 2/3. The cumulative exceedence ratio for this reach is 2/15. This reach is partially supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: TMDLs were drafted for temperature, turbidity, and aluminum.

Rito de Tierra Amarilla (HWY 64 to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_072

New listing based on 1988 data at station URG116.017020. The total phosphorus ratio at this station is 2/2.

1998 ACTION: This reach is listed as Not Supported with total phosphorus as the cause of non-support.

2000 ACTION: This river has been divided into upper and lower segments. Two sample stations were established this reach. The upper station at the bridge was 0/4 for Total phosphorus exceedences. The lower station at the Hwy 112 culvert was 0/4 for total phosphorus exceedences.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total phosphorus on the Upper Rito de Tierra Amarilla.

2002 ACTION: None. Previously named Rito de Tierra Amarilla at US Highway 84 Bridge.

2004 ACTION: None

Rito de Tierra Amarilla (Rio Chama to US Highway 64)
WQS: 20.6.4.119 AU: NM-2116.A_070

2000 ACTION:

Stream Bottom Deposits: From the point the road intercepts the stream, the stream is 100% embedded with silt runoff from land activities associated with the upper drainage area.

A new listing will be added for stream bottom deposits at the lower sampling station

Turbidity: Two sample stations were established on this reach. The upper station at HWY 64 bridge was 0/8 for turbidity exceedences. The lower station at the Hwy 112 culvert was 4/8 exceedences for turbidity.

A new listing will be added for turbidity at the lower sampling station

Temperature: One thermograph were deployed on the lower reach The thermograph was deployed on the Lower Rito de Tierra Amarilla at the Hwy 112 bridge and

exceeded the HQCWF criterion 194/864 times with a maximum temperature of 29.5°C.

A new listing will be added for temperature at the lower sampling station

2002 ACTION: None. Previous named Lower Rito de Tierra Amarilla at US Highway 112 culvert.

2004 ACTION: TMDLs were written for temperature, turbidity, and SBD/sedimentation**.**

Rito Encino (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_021

Listing based on 5/5 exceedences for total phosphorus and turbidity.

1998 ACTION: This reach will be listed as Not Supported with total phosphorus and turbidity as causes.

2000 ACTION:

Total Phosphorus: Total phosphorus no longer has a standard associated with it. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Turbidity: The exceedence ratio for this reach is as follows: spring 1/4, summer 0/2 and fall 0/2. The cumulative exceedence ratio for this reach is 1/8. The standard is 25 NTU. This reach is full support, impacts observed.

Add to the 305(b) report as FSIO.

Conductivity: The exceedence ratio on this reach is as follows: spring 0/4, summer 0/2 and fall 1/2. The cumulative exceedence ratio on this reach is 1/8. The standard is 500 umhos. This reach is full support, impacts observed,

Add to the 305(b) report as FSIO.

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 2/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None.

Rito Redondo (Rito Resumidero to headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_026

Previously listed for total organic carbon and stream bottom deposits. Ratios for total organic carbon are 2/5 and 1/5 from a 1986 survey.

1998 ACTION: The reach is listed as Partially Supporting with total organic carbon and stream bottom deposits as the cause of non-support.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 19% fines <2mm (FS) and an embeddedness of 25%(FS). According to the Assessment Protocol, this reach is considered fully supporting its designated use.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on Rito Redondo.

Total Organic Carbon (TOC): The exceedence ratio on this reach is as follows: spring 0/4, summer 2/2 and fall 2/2. The cumulative exceedence ratio for this reach is 4/8. The standard is 7mg/L. This reach is not supported.

TOC will be retained as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None.

Rito Resumidero (Rio Puerco de Chama to the headwaters)
WQS: 20.6.4.119 AU: NM-2116.A_025

Previously listed for total ammonia, total organic carbon and stream bottom deposits. Ammonia data from 1986 have ratios of 0/6 and 0/6. Total organic carbon data from the same event are 1/5 and 1/5.

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. The reach will be listed on the 1998 305(b) list as Full Support, Impacts Observed with total organic carbon as the cause. The reach will continue to be listed on the 303(d) list as Not Supporting for stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: One station was evaluated along this reach. The reach had 30% fines <2mm (PS). According to the Assessment Protocol, this reach is considered partially supporting its designated use do to the moderate level of fines.

Stream bottom deposits will be retained as a cause of non-support for this reach

Total Organic Carbon (TOC): The exceedence ratios are as follows: spring 0/4, summer 0/2 and fall 2/2. The cumulative exceedence ratio for this reach is 2/8. This reach is partially

supporting.

TOC will be added as a cause of non-support

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None.

MIDDLE RIO GRANDE (Elephant Butte to Cochiti Reservoir)

HUC 13020201 Rio Grande - Santa Fe

Alamo Creek (Cienega Creek to headwaters)
WQS: 20.6.4.113 AU: NM-2110_20

Previously listed for metals (unknown). There are no data, historical or otherwise, for this reach.

1998 ACTION: This reach will continue to be listed as partially supporting for metals (unknown) and will be sampled as part of the 1998-1999 for the Santa Fe River TMDL Project.

2000 ACTION:

Metals: Access was limited to the portion of the reach that flows under I-25. On several occasions, across all seasons, SWQB staff went to sample the reach and found that it was not flowing. The portion of Alamo Creek that enters into the Santa Fe River was inaccessible through private lands. Communications with SWQB staff indicate that the listing for metals may have been based on a historic smelter along Alamo Creek. The existence of this smelter is not documented anywhere. Historic data, for 1984, show no exceedences of metals. Also, there were no metals criterion in 1984, they were not promulgated until 1991. However, using today's standards and a hardness of 318, the following calculations can be made. Boron is reported as 160 micrograms or .160 milligrams. Today's standard is 5000 micrograms or 5 milligrams. Cadmium is reported as 4 micrograms/liter (total) and the standard is 3.4 micrograms/liter dissolved. Using the partitioning coefficient, the dissolved concentration is 1.4 micrograms/liter. Chromium is reported as 16 micrograms/liter (total) and the standard is 100 micrograms/liter dissolved. Using the partitioning coefficient, the dissolved concentration is 2.655 micrograms/liter. If there were flow in Alamo Creek, any contributions of metals from Alamo Creek would flow to the Santa Fe River. Downstream from the confluence of Alamo Creek with the Santa Fe River there were no exceedences for any metals in any samples during Fall 1999.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for metals on Alamo Creek.

2002 ACTION: None

2004 ACTION: None.

Capulin Creek (Rio Grande to headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_72

Previously listed for stream bottom deposits and turbidity. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled as part of the URG II survey in 2001. This creek is located in Bandelier National Monument and must be hiked into to access. The creek was only visited during the fall sampling run. There were 0 of 8 turbidity exceedences. **Therefore, turbidity will be removed as a cause of non support.** A biological survey indicated biological impairment (70% of reference) using Rio Nambe as a reference site. A concurrent pebble count was not conducted, so there is insufficient data to determine stream bottom impairment according to our current protocol. **Therefore, SBD/sedimentation/siltation and benthic macroinvertebrate bioassessments will remain as a cause of non support.**

Cienega Creek (Santa Fe River to Cienega Village)
WQS: 20.6.4.113 AU: NM-2110_10

Previously listed for fecal coliform and chlorine. There is one sampling station on this reach. All data are from a 1986 survey. For chlorine, the ratio of exceedences was 1/1, full support, impacts observed. For fecal coliform, the ratio of exceedences was 1/1, full support, impacts observed. For ammonia, chronic, the ratio of exceedences was 1/5, full support, impacts observed.

1998 ACTION: This reach will sampled in 1998-1999 for the Santa Fe River TMDL Project and thus will remain on the 303(d) list partially supporting for fecal coliform, total ammonia and chlorine.

2000 ACTION:

Fecal Coliform: No exceedences of the fecal coliform criterion were observed during the Fall sampling. A hog pen in the floodplain of Cienega Creek continues to be a concern. City of Santa Fe sampling from 1995 shows high levels of fecal coliform during high flow events.

This reach will continue to be listed for fecal coliform until data becomes available to allow for de-listing.

Total Residual Chlorine: The SWQB is obtaining an amperiometric titration instrument to evaluate chlorine in the stream.

This reach will continue to be listed for total residual chlorine until data becomes available to allow for de-listing.

Total Ammonia: No exceedences of the ammonia criteria were observed during sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on Cienega Creek.

2002 ACTION: One station was sampled in August and September of 2001 to assess various listed criteria. Based on field and equipment notes, total residual chlorine data from earlier studies is suspect because it is uncertain whether the second phase of the field measurement necessary to remove interferences was completed at the time of sampling. During the 2001 study, there were 0 of 8 exceedences at the station below La Cienega. Therefore, **total residual chlorine will be removed as a cause of Non Support**.

There were 0 of 5 fecal coliform exceedences. Therefore, **fecal coliform will be removed as a cause of Non Support.**

2004 ACTION: None.

Cochiti Reservoir
WQS: 20.6.4.112 (state standards do not apply within tribal boundaries)
AU: not in database (tribal land)

1998 ACTION: Not listed

2000 ACTION:

Cochiti Reservoir was characterized (in a report titled, ***Cooperative Lake Water Quality Assessment Surveys for Selected New Mexico Tribal and Pueblo Lakes 1994-1995)*** as mesoeutrophic to eutrophic according to Carlson's (1977) indices and Likens' (1975) phytoplankton community composition (Tables 4.3 and 4.4). Secchi depth results for three stations during three seasons all indicated eutrophic conditions. Chlorophyll *a* results indicated oligotrophy for the majority of samples while phosphorus concentrations consistently indicated enriched eutrophic conditions. Total-nitrogen-to-phosphorus ratios indicate that nitrogen was the limiting nutrient in Cochiti Lake during all sampling visits. Phytoplankton community composition consisted primarily of the Bacillariophyceae, Chlorophyceae, Cyanophyceae and Euglenophyceae, which Likens associates with eutrophic conditions. However, a substantial portion of the phytoplankton community consisted of Cryptophyceae, typically associated with

less enriched conditions (Table 4.4). The Shannon-Wiener diversity indices suggest that phytoplankton diversity was generally moderate to high during the sampling trips. Qualitative diatom analysis of sediment collected by Eckmann Dredge resulted in 36 species per 215 cells. Eight additional species were observed though not during the formal count. Shannon-Wiener diversity indices showed that diatom diversity was very high (Table 4.5).

Qualitative macroinvertebrate sampling from sediments collected by Eckmann Dredge resulted in one species of Chironomidae from the Bland Canyon station, and six genera of macroinvertebrates from the dam station. Dam station members consisted of Chironomidae and one genera of Ephemeropterian insects and also an amphipode, Naididae Oligochaete, Tubificidae worms and a large number of Pelecypoda or seed clams (Table 4.6). Macroinvertebrate diversity according to Shannon-Wiener was high.

Nutrient and hydrologic budgeting for Cochiti Reservoir during the 1995 study was not practical due to the limited number of sampling runs. Though three seasons of water quality data produce information useful in predicting nutrient enrichment and trophic conditions, greater numbers of samples are needed to adequately calculate nutrient loading as was done in the earlier study by Potter (1985). However, it is reasonable to compare the earlier results with results during this study to determine major water quality conditions and changes that may be noteworthy.

In general, pool size appeared to be larger during the 1995 survey and phosphorus and nitrogen concentrations appeared lower. This may be a function of dilution due to the increased reservoir- volume during sampling runs. However, phytoplankton community composition and other trophic state indicators also suggest a possible decrease in nutrient concentration, at least during the sampling visits. A primary finding of the 1985 report was that nonpoint sources in the 11,960 square miles of watershed draining to Cochiti Lake are the major contributors of nutrient enrichment. It was determined that the elimination of point source discharges would have little effect on Cochiti Reservoir nutrient concentrations and consequent trophic status.

The New Mexico water quality standards do not apply to water bodies on tribal lands. The comparison of water data collected from stations located within the external borders of the Pueblo of Cochiti to the New Mexico *Standards for Interstate and Intrastate Streams* is meant for discussion purposes only. The chronic water quality standard for dissolved aluminum (87µg/L) applicable to the cold and warmwater fisheries uses was exceeded at the dam station during the spring and summer sampling visits and at the Bland Canyon station during the spring run. Values at the dam station were 200 µg/L and 100 µg/L for spring and summer runs respectively and 100µg/L at the Bland Canyon station in the spring.

However, none of these three exceedences constituted a violation of the New Mexico chronic water quality standard for aluminum, since this standard is applicable only to the arithmetic mean of four samples collected on each of four consecutive days. One temperature reading taken from Cochiti Lake at Bland Canyon exceeded the segment-specific numeric standard of 25ºC. Seasonal exceedences for temperature are not uncommon, especially in the upper portions of the water column. A single exceedence of the numeric standard for turbidity was noted in the spring at Cochiti Lake at Bland Canyon. This portion of the upper lake is actually more riverine and serves as a settling area for sediments transported down-river. No turbidity or temperature

exceedences were noted in the main body of the lake. At the station near the dam there were 19 violations of the numeric standard for dissolved oxygen applicable to the coldwater fishery use. Only one of these measurements was also below the numeric standard applicable to the warmwater fishery use. There was also a single violation of the numeric standards for total ammonia at the dam station during the summer sampling effort. The exceedences of numeric standards for aluminum, total ammonia and temperature indicate a partial impairment of the coldwater and warmwater fishery uses. The exceedence of the turbidity standard indicates a slight impairment of the primary contact use at the Bland Canyon station in the spring. All other designated uses were attained.

No metals other than aluminum were detected in the water at levels of concern. However, a State fish-consumption advisory has been issued which included selected fish species in Cochiti Lake. Mercury existing in the water column at levels well below the minimum quantification levels of the EPA-approved methods can still actively bioaccumulate through the natural food web. Resultant levels in fish can readily reach the analytical detection limits and even pose a health risk to fish consumers. Channel Catfish, Black Crappie and Walleye were all listed in this advisory and placed by size into categories with increasing recommended restrictions on consumption.

Water samples were also analyzed for the presence of pesticides, herbicides and radiochemicals to provide added baseline information for the Pueblo of Cochiti. No levels of concern were noted in the results from these analyses. Samples for the determination of sediment metals and sediment radiochemicals were collected during the summer at the stations near the dam and at Bland Canyon as baseline information. The State has not adopted numeric standards for sediments and there are no current guidelines for reference. Several radiochemicals were detected in sediment samples collected at Bland Canyon, including plutonium-239. Since the upper canyon area of the lake serves as a settling area, the highest concentrations of contaminants of concern would likely be found in the sediments there. The Surface Water Quality Bureau recommends that the Pueblo of Cochiti continue sampling for sediment metals and that EPA and DOE supply information concerning the appropriate levels of radiochemicals to the Pueblo.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for nuisance algae, pesticides and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: Removed from the 303(d) list because 100% on tribal land. There are fish consumption guidelines for Cochiti Reservoir.

2004 ACTION: At high water, the reservoir may in fact go upstream outside the pueblo boundary. This state standard's applicable to the river upstream of the reservoir would apply in this non-tribal portion, when it exists (according to EPA Region 6). The reservoir is managed by the Bureau of Reclamation (BOR). Per EPA Region 6, BOR's management does not affect the fact that state standards do not apply within tribal boundaries.

2004 ACTION: None

Galisteo Creek (Perennial reaches abv Santo Domingo bnd)
WQS: 20.6.4.121 AU: NM-2118.A_10

Previously listed for stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None. As determined by SWQB fish surveys, this assessment unit does not contain a coldwater fishery and likely did not in 1975. The system is intermittent with perennial reaches.

2004 ACTION: This assessment unit was intensively sampled as part of the URG II survey in 2001. Galisteo Ck at Galisteo (59% fines) was used as a reference to determine potential stream bottom deposit impairment. Galisteo Ck at Cerrillos had 76% fines and the benthics were non-impaired. **Therefore**, s**tream bottom deposits will be removed as a cause of non-support.** The specific conductance criterion of 300 umhos was exceeded in 14 of 14 measurements. **Therefore, specific conductance will be added as a cause of non-support.** 5 of 14 instanteous temperature readings taken during site visits were greater than 20 degrees C. A thermograph was deployed at Galisteo Ck at Galisteo summer 2003. The temperature exceeded 23 degrees C and exceeded 20 degrees C for greater than four hours. **Therefore, temperature will be added as a cause of non-support.** This reach is misclassified as a HQCWF according to fisheries data. A UAA will be prepared instead of a TMDL, thus this AU will be catergorized under 5B.

Las Huertas Creek (Placitas to Capulin Canyon)
WQS: 20.6.4.111 AU: NM-2108.5_00

Previously listed for stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None.

Mortandad Canyon (San Ildefonso bnd to headwaters)
WQS: unclassified AU: NM-9000.A_42

2002 ACTION: **Gross Alpha was listed as cause of Partial Support** because the Livestock Watering criterion of 15 pCi/L was exceeded two times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 27.08 and 30.93. **Selenium was listed as Full Support Impacts Observed** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded one time in 2001 at 7.76 ug/L. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

2004 ACTION: Gross Alpha will remain listed as Non Support. There was additional exceedences of the Livestock Watering criterion of 15 pCi/L (647.24 pCi/L) in 2002. This datum was collected by the NMED DOE Oversite Bureau. In the time-weighted composite LANL 2003 storm event data set, there were two additional exceedences at the station below Effluent Canyon (209.54 and 351.58 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

Selenium will be added as Non Support because there was an additional exceedence of the Wildlife Habitat chronic screening criterion of 7.5 ug/L (5.0 ug/L x 1.5) on 9/3/2003 of 7.88 ug/L in stormwater collected by LANL.

Pajarito Canyon (Rio Grande to headwaters)
WQS: unclassified AU: NM-9000.A_40

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded six times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 124.72, 136.86, 133.72, 23.75, 56.86, and 313.32. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded three times in time-weighted composite samples in 2001. Selenium exceedences were as follows (ug/L): 29.0, 8.98, 8.89, 11.1, and 16.9. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001.

2004 ACTION: Gross Alpha will remain listed as Non Support. There were two additional exceedences of the Livestock Watering criterion of 15 pCi/L (370.48 and 102.93 pCi/L) in 2002. These data were collected by the NMED DOE

Oversite Bureau. In the time-weighted composite LANL 2003 storm event data set, there were two additional exceedences at the station above Threemile (257.63 and 911.38 pCi/L), and one additional exceedence at the station above Starmers (1478.23 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

Selenium will also remain listed. A time-weighed composite sample collected by LANL on 5/26/2003 (7.91 ug/L) also exceeded the selenium screening level of 7.5 ug/L.

Rito de los Frijoles (Rio Grande to headwaters)
WQS: 20.6.4.121 AU: NM-2118.A_70

The segment was originally listed due to the levels of DDT in fish that led the National Park Service to issue a fishing closure. A 1996 consultant report stated that remediation of DDT contaminated soil and sediment was not warranted on the basis of ecological risk, potential human health impacts, or direct risk to cultural resources.

1998 ACTION: Because the fishing closure is still in effect, the stream was retained on the list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively during the 2001 URGII survey. There were no exceedences of 4,4'-DDT or derivatives in water during the survey. SWQB did not collect sediment or fish tissue samples during this study. The USGS sampled this area extensively as part of the NAWQA program in the early 90s. According to NPS staff, the fishing ban is still in effect in part due to potential DDT levels still remaining in fish, and in part due to conflicting recreational uses (this is a bosque picnic area). In 1996, a consultant prepared the report noted above which identified "hotspots." Sediments in these areas were remediated. Other potential areas of low level contamination were identified, but with no discernable pattern. The assumption is that DDT contamination was the result of both inappropriate washing of containers used to mix DDT-based pesticides into a grease pit that drained to the creek, as well as spraying of individual trees for pest management. The later source would explain the patchy nature of the contamination. As noted above, the report concluded additional remediation would not warranted based on ecological risk and other factors. Also, the NPS needed to consider the impacts of removing several acres of healthy riparian bosque in order to access and remove any remaining contaminated sediments in an area where the exact location of contamination could not be determined. The NPS plans to leave the fishing ban in effect indefinitely.

Therefore, the DDT listing remains. Fish tissue data will be collected in 2005.

There were 5 of 16 turbidity exceedences and 2 of 5 fecal coliform exceedences. A thermograph was deployed near the visitor center. The temperature criterion of 20 degrees C was exceeded for more than four consecutive hours for more than three consecutive days. **Therefore, fecal coliform, turbidity, and temperature will be added as causes of non support.** This AU will be categorized as 5C because biological data is needed to verify impairment due to turbidity. Exceedences were marginal (11.1, 12.7, 10.7, 10.8, and 13.5 NTUs compared to the criterion of 10 NTUs).

Sandia Canyon (San Ildefonso Pueblo bnd to headwaters)
WQS: unclassified AU: NM-9000.A_47

2002 ACTION: **PCBs were listed as Non Support** because the because the Wildlife Habitat chronic screening criterion of 0.021 ug/L (0.014 ug/L x 1.5) was exceeded on, 7/14/2002, and 8/7/2003 with values of 0.11* and 0.078* ug/L on 7/4/2002, 0.11 ug/L on 7/14/2002, and 0.23 and 0.14 ug/L on 8/7/2003. These data were collected by LANL, analyzed using the 40 CFR Part 136 AROCLOR method, and compiled by the DOE Oversite Bureau.

NOTES: * = These data were J-flagged. According to the Assessment Protocol (section 2.1.1), "…*Concentrations detected below minimum quantification limit (ML) but above the method detection limit (MDL) are typically flagged with a "J" qualifier that indicates the reported concentration is estimated. The concentration is reported as estimated because the concentration being detected is below the lowest concentration on the calibration curve. There is certainty as to the identification of the chemical but uncertainty as to the reported concentration. These values may be used in an assessment.*

Santa Fe River (Cochiti Pueblo bnd to the Santa Fe WWTP)
WQS: 20.6.4.113 AU: NM-2110_00

Listed for metals (Ag, Al, Fe and Cd), turbidity, chlorine, pH, total ammonia, radioactivity, and stream bottom deposits,. Surveys were conducted in 1994, 1995, and 1996. Most data are from the 1995 survey. For Ag, the ratio for chronic screening for grab samples at 6 monitored sites is 0/19. For Al, the ratio for chronic screens at 6 sites is 0/20. For Cd, the ratio for chronic screens at 6 sites is 0/25. Fe is listed but there is no standard for iron. This parameter was evaluated against the EPA criteria of 1.0 mg/l. There were no recent exceedences of this criteria. Data within the last 5 years has a cumulative ratio of 0/58. This data includes a USGS site which is monitored quarterly. For the 3 components that make up radioactivity only one had values greater than the criteria. The ratios for gross alpha at two sites were 1/4 and 1/3. 0/13 samples at the other sites were greater than the

criteria. The listing will be modified to show an entry for gross alpha not radioactivity. For turbidity, in the 0-5 year data ratios were 0/11, 0/11, 0/18, 0/ 9, and 0/10. For total ammonia, there were 5 stations with 0-5 year data. The aggregated ratio of these stations is 5/55. 2 stations had ratios that are considered partially supported. For pH, 2 stations had ratios in the Partial to Not Supporting range. Although the chlorine data available are old, there are not more recent data to support a change in the listing. Biological assessments were conducted at four stations on this reach in 1995. Three of the four assessments were NS (36%, 36%, 36%). One station near the confluence with the Rio Grande was Full Support, Impacts Observed. The report cites changes due to hydromodification as the most probable cause of non-support.

1998 ACTION: Silver, aluminum, cadmium, iron, and turbidity have been removed as causes of non-support for this reach. The reach continues to be included on the 1998 303(d) list with total ammonia, pH, gross alpha, chlorine, and stream bottom deposits as causes of non-support.

For fecal coliform, the ratio of exceedences was 1/1, full support, impacts observed. For ammonia, chronic, the ratio of exceedences was 1/5, full support, impacts observed. This reach will sampled in 1998-1999 for the Santa Fe River TMDL Project and thus will remain on the 303(d) list **partially supporting for fecal coliform, total ammonia and chlorine**.

2000 ACTION:

Turbidity: There were no exceedences of the criterion during the 1998-1999 sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Santa Fe River.

Metals: There were no exceedences of acute levels or of the 4-day chronic criterion for metals during the 1998-1999 sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for metals on the Santa Fe River.

Total Residual Chlorine: EPA has developed a TMDL **for total residual chlorine**

Total Ammonia: No acute or chronic exceedences of the ammonia criteria were observed during sampling.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on the Santa Fe River.

Gross Alpha: No exceedences of the criterion were observed during the 1998-1999 sampling. Remediation has been completed at the La Bajada Mine Site.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for gross alpha on the Santa Fe River.

Stream Bottom Deposits: This river is characterized by two stations. The upper station, below the WWTP, is a Rosgen F4 stream type with a % fines <2mm of 7% indicating full support. The lower station, at the river preserve, is a Rosgen C4 stream type with a % fines <2mm of 27% indicating a moderate level of impairment.

A TMDL was developed for the Santa Fe River to address stream bottom deposits.

pH: A temporal and spatial pattern has been observed for pH in the stream. pH increases from 7.5 to as high as 9.0 SU approximately 2.5 miles downstream of the WWTP.

Algal growth from nutrient enrichment is the most probable cause of the pH fluctuations. A TMDL will be developed by EPA for pH.

The TMDL document for pH was developed by EPA.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO). No exceedences (0/4) of the fecal coliform criteria were observed during the 1998-1999 Fall sampling.

Add to the 305(b) report as FSIO.

DO: Problems with DO fluctuations were documented during sampling over several seasons in 1999.

The TMDL document for DO was developed by EPA.

2002 ACTION: The plant nutrient assessment was performed. This reach was determined not to be impaired by plant nutrients. A de-list letter was prepared.

Two stations were sampled in August and September of 2001 to assess various listed criteria. Based on field and equipment notes, total residual chlorine data from earlier studies is suspect because it is uncertain whether the second phase of the field measurement necessary to remove interferences was completed at the time of sampling. During the 2001 study, there were 0 of 8 exceedences at the USGS gage station and 0 of 8 exceedences as the

station immediately below the WWTP for total residual chlorine. Therefore, **total residual chlorine will be removed as a cause of Non Support**.

There were 2 of 16 (12.5%) pH measurements that were above the 6.6 to 9.0 criteria range. Therefore, **pH will be changed from Partial Support to Full Support Impacts Observed** based on the most recent assessment protocols.

There were 0 of 16 DO values below the criterion of 5.0 mg/L. Therefore, **DO will be removed as a cause of Non Support.**

There were 0 of 5 fecal coliform exceedences. Therefore, **fecal coliform will be elevated from Full Support Impacts Observed to Full Support.**

2004 ACTION: pH and DO were added back as impairments because these listings were based on sonde data (they should not have been removed based on grab sample data when sonde data were available).

Water Canyon (Rio Grande to headwaters)
WQS: unclassified AU: NM-9000.A_44

2002 ACTION: **Gross Alpha was listed as Non Support** because the Livestock Watering criterion of 15 pCi/L was exceeded 12 times in time-weighted composite samples in 2001. The uranium-corrected gross alpha minus plutonium and americium exceedences were as follows (pCi/L): 464.99, 365.49, 474.59, 94.69, 49.86, 1587.38, 210.34, 847.15, 21.16, 418.19, 223.70, and 442.07. **Selenium was listed as Non Support** because the Wildlife Habitat chronic screening criterion of 7.5 mg/L (5.0 mg/L x 1.5) was exceeded 17 times in in time-weighted composite samples 2000 and 2001. Selenium exceedences were as follows (ug/L): 17.3, 23.3, 7.77, 11.1, 17.6, 9.55, 8.52, 8.43, 27.1, 11.5, 14.7, 9.1, 16, 28.8, 10.6, 14.9, and 24.4. Los Alamos National Laboratory collected all data used in these assessments during storm events in 2000 and 2001

2004 ACTION: Gross Alpha will remain listed as Non Support. There were seven additional exceedences of the Livestock Watering criterion of 15 pCi/L (370.48 and 102.93 pCi/L) in the time-weighted composite LANL 2003 storm event data set. There were five additional exceedences at the station above Threemile (26.46, 69.24, 310.86, 253.62, and 365.09 pCi/L), one additional exceedence at the station Water at SR-4 (611.58 pCi/L), and one additional exceedence at the station Canyon de Valle trib at Burn Grounds (204.19 pCi/L). All these data were calculated as uranium-corrected gross alpha minus plutonium and americium.

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American Creek (Rito de las Palomas to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_44

Previously listed for temperature, stream bottom deposits and turbidity. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with temperature, stream bottom deposits and turbidity as the cause of non-support.

2000 ACTION: None

2002 ACTION: This stream was removed from the 303(d) list because it is not perennial and, therefore, does not fall under WQS 20.6.4.503. During seven sampling visits in 1998, there was no flow in the channel. Therefore, no water quality data could be collected. Designated uses that apply to this ephemeral water are livestock watering and wildlife habitat. Water quality standards for stream bottom deposits, turbidity, and temperature do not apply. A de-list letter was prepared.

2004 ACTION: None

Calaveras Creek (Rio Cebolla to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_53

2000 ACTION:

Stream Bottom Deposits: From the point that the road intercepts the stream, the stream is 100% embedded with silt runoff from the road and associated drainage ditches.

Stream bottom deposits will be listed as a cause of non-support for Calaveras Creek

2002 ACTION: None.

2004 ACTION: None

Clear Creek (Rio de las Vacas to San Gregorio Lake)
WQS: 20.6.4.108 AU: NM-2106.A_54

2000 ACTION:

Total Organic Carbon (TOC): One sampling station was established on this reach. Monitoring at the station documented 11/11 exceedences for TOC.

TOC will be listed as a cause of non-support for Clear Creek

Turbidity: One sampling station was established on this reach. Monitoring at the station documented 3/7 exceedences for turbidity.

Turbidity will be listed as a cause of non-support for Clear Creek

2002 ACTION: None. TMDLs for turbidity and TOC were developed.

In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

Fenton Lake
WQS: 20.6.4.108 **AU: NM-2106.B_00**

1998 ACTION: **Not listed**

2000 ACTION:

Fenton Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** as having dissolved phosphorous

and kjeldahl-N concentrations that were high during the summer relative to other lakes. Moderate temperature and dissolved oxygen stratification was observed. The algal population was dominated by blue-green algae. Chlorophyll concentrations declined dramatically by the time of fall sampling, as turnover was nearly complete. Phosphorus was the sole limiting nutrient for phytoplankton during all seasons.

Although the data for this reservoir is dated, it is still listed in the State's 305(b) Report as impaired for total phosphorus, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: There is no longer a standard for total phosphorus for high quality coldwater fishery. Nusiance algae was replaced with Plant nutrients and Siltation was replaced with Bottom deposits to be consistant with the language in our narrative standards.

2004 ACTION: None

Jaramillo Creek (East Fork Jemez to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_12

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. Thermograph data indicated a max temperature of 26.09 degress C. Sonde data (20%) and grab dat (23%) indicated turbidity impairment. There were 17 of 17 exceedences of the chronic aluminum criterion and 3 of 17 exceedences of the acute aluminum criterion. **Therefore, turbidity, temperature, and aluminum will be added as causes of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed.

Jemez River (East fork)
WQS: 20.6.4.108 AU: NM-2106.A_10

Previously listed for nutrients, chlorine, and stream bottom deposits. There are two stations on this reach that were last sampled in 1987. For nutrients, no exceedences were found, thus indicating full support. For chlorine, station MRG106.011001 had an exceedence ratio of 1/1, full support, impacts observed.

1998 ACTION: Nutrients will be dropped from the list while chlorine will be added to the 305(b) report as full support, impacts observed. Stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Stream Bottom Deposits: The East Fork is characterized by a station located

above the confluence with San Antonio Creek. Classified as a C4 stream, this station has a % fines <2mm of fewer than 2%. This segment is assessed as having excellent stream bottom substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on the East Fork of the Jemez River.

Turbidity: The exceedence ratio on this reach for turbidity was 2/7.

A new listing will be added for turbidity

Total Organic Carbon (TOC): There is an abbreviated data set for this parameter that shows both stations with a 1/3 exceedence ratio of the criterion. Additional analyses will be collected.

Add to the 305(b) report as FSIO.

2002 ACTION: None. A TMDL was prepared for turbidity.

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. Sonde and grab data indicate pH impairment. There were 0 of 17 exceedences of the dissolved oxygen criterion of 6.0 mg/L using grab data. Percentages applied to sonde data indicate impairment, while the draft large DO dataset protocol indicates no impairment. Thermograph data from the USGS indicated 10 exceedences of the 23 degrees C. SWQB thermograph data indicated a max temperature of 28.3 degress C. Sonde data indicated 15% exceedence rate of turbidity.There were 17 of 19 exceedences of the chronic aluminum criterion of 0.087 mg/L. **Therefore, turbidity will remain and temperature, dissolved oxygen, pH, and aluminum will be added as causes of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed, and the sonde and grab DO data gave conflicting results.

Jemez River (HWY 4 near Jemez Springs to East Fork)
WQS: 20.6.4.108 AU: NM-2106.A_00

Previously listed under "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" and listed for turbidity, conductivity, plant nutrients, stream bottom deposits and chlorine. Data from four stations were used in the turbidity assessment. Station MRG105.009035 (3/6) was determined to be partially supported. All other stations were full support with 0/12 exceedences. Data for conductivity were available from only two stations. Station MRG106.009505 was partially supported with a 2/5 ratio. Station MRG106.009510 was

0/11 or full support for conductivity. Per the assessment protocol, two stations, MRG105.009035 and MRG105.009510, were 1/1 or Full Support, Impacts Observed for chlorine.

1998 ACTION: Chlorine was removed a cause of non-support. Turbidity, conductivity, plant nutrients and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Turbidity: Four sampling stations on this reach have an exceedence ratio of 3/7, 6/10, /2/7 and 3/4 respectively.

A TMDL was developed for the Jemez River to address turbidity.

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Jemez River in November of 1998. The Hilsenhoff Biotic Index (HBI) that is used as an indicator of nutrient enrichment showed a calculated value of 4.84. This number falls in the HBI range of 4.51-5.50 meaning water quality is good with some organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on the Jemez River.

Stream Bottom Deposits: There is one station on this reach that was used to characterize the Jemez River. This reach of the Jemez River is a Rosgen C3 stream type with a % fines <2mm of 26% indicating a moderate level of impairment.

A TMDL was developed for the Jemez River to address stream bottom deposits.

Conductivity: Four stations on this segment have exceedence ratios of 0/7, 0/10, 0/7 and 0/4 for conductivity.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for conductivity on the Jemez River.

Metals (Al Acute): One metals station on this reach provided an exceedence of the aluminum criterion with a 4-day average of 947ug/l. Of these four samples, two exceeded the acute criterion for aluminum.

A new listing will be added for metals (Al acute)

2002 ACTION: None**. A TMDL was prepared for acute aluminum.** The original assessment unit "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" was split into two because they fall under two different water quality standard segments.

2004 ACTION: None

Jemez River (Jemez Pueblo bnd to Rio Guadalupe)
WQS: 20.6.4.105 AU: NM-2105_71

Previously listed for metals (As) and fecal coliform. In the aggregated 10 year data set for arsenic at three stations, the ratio of exceedences to samples is 0/20. Additional data from the recently completed USGS study of the middle Rio Grande also support this change to full support. For fecal coliform, the data set is limited. Ratios for three stations are 1/2, 0/3, and 0/2. Station MRG105.006050 will be listed as Full Support, Impacts Observed while stations MRG105.006010 and MRG105.007015 will be changed to full support.

1998 ACTION: Arsenic was removed as a cause of non-support. Per the assessment protocol, the reach was removed from the 303(d) list and will be listed on the 305(b) list as Full Support, Impacts Observed for fecal coliform.

2002 ACTION: None. Revised name to remove portion under tribal jurisdiction.

2004 ACTION: None

Jemez River (Rio Guadalupe to HWY 4 near Jemez Springs)
WQS: 20.6.4.107 AU: NM-2105.5_10

Previously listed under "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" and listed for turbidity, conductivity, plant nutrients, stream bottom deposits and chlorine. Data from four stations were used in the turbidity assessment. Station MRG105.009035 (3/6) was determined to be partially supported. All other stations were full support with 0/12 exceedences. Data for conductivity were available from only two stations. Station MRG106.009505 was partially supported with a 2/5 ratio. Station MRG106.009510 was 0/11 or full support for conductivity. Per the assessment protocol, two stations, MRG105.009035

and MRG105.009510, were 1/1 or Full Support, Impacts Observed for chlorine.

1998 ACTION: Chlorine was removed a cause of non-support. Turbidity, conductivity, plant nutrients and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Turbidity: Four sampling stations on this reach have an exceedence ratio of 3/7, 6/10, /2/7 and 3/4 respectively.

A TMDL was developed for the Jemez River to address turbidity.

Plant Nutrients: Field assessments were conducted using the draft Nutrient Assessment Protocol and draft Source Documentation Protocol. Since there is no numeric standard for plant nutrients in New Mexico, the narrative standard for plant nutrients is evaluated using this protocol. No plant nutrient impairments were found along this reach. There were no exceedences of nutrient related criteria such as total phosphorus, nitrogen, pH and dissolved oxygen during any sampling season. As well, there were no observations of nutrient over-enrichment noted on field sheets during any sampling season. In addition, there was a biological assessment conducted on Jemez River in November of 1998. The Hilsenhoff Biotic Index (HBI) that is used as an indicator of nutrient enrichment showed a calculated value of 4.84. This number falls in the HBI range of 4.51-5.50 meaning water quality is good with some organic pollution present.

Water quality standards, as assessed using the 1998 Assessment Protocol and 1999 draft Nutrient Assessment Protocol are currently being met for plant nutrients on the Jemez River.

Stream Bottom Deposits: There is one station on this reach that was used to characterize the Jemez River. This reach of the Jemez River is a Rosgen C3 stream type with a % fines <2mm of 26% indicating a moderate level of impairment.

A TMDL was developed for the Jemez River to address stream bottom deposits.

Conductivity: Four stations on this segment have exceedence ratios of 0/7, 0/10, 0/7 and 0/4 for conductivity.

Water quality standards, as assessed using the 1998 Assessment Protocol, are

currently being met for conductivity on the Jemez River.

Metals (Al Acute): One metals station on this reach provided an exceedence of the aluminum criterion with a 4-day average of 947ug/l. Of these four samples, two exceeded the acute criterion for aluminum.

A new listing will be added for metals (Al acute)

2002 ACTION: None. **A TMDL was prepared for acute aluminum. The** original assessment unit "Jemez River from Rio Guadalupe to the confluence of the East Fork of the Jemez River and San Antonio Creek" was split into two because they fall under two different water quality standard segments.

2004 ACTION: None

La Jara Creek (East Fork Jemez to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_11

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 3 of 3 exceedences of the chronic aluminum criterion. **Therefore, aluminum will be added as a cause of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed.

Redondo Creek (Sulphur Creek to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_21

Previously listed as partially supported for total phosphorus and fecal coliform. Data on this segment are very limited. Ten-year data is limited to one station (USGS 355223106371710) this station has two sampling events (1996 and 1997). For total phosphorus, this station shows 0/2 samples greater than the criterion that indicates full support. For fecal coliform, there have been only two samples collected. The exceedences ratio of 1/2 will result in a listing of Full Support, Impacts Observed for fecal coliform.

1998 ACTION: Phosphorus was removed as a cause of non-support. As per the assessment protocol, the reach was upgraded to Full Support, Impacts Observed for fecal coliform and will be placed on the 305(b) list.

2000 ACTION:

Total Phosphorus: Two sampling station were established on this reach. Monitoring at the stations documented 7/10 exceedences for total phosphorus.

A TMDL was developed for Redondo Creek to address total phosphorus.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO).

Add to the 305(b) report as FSIO.

Turbidity: One sampling station was established on this reach. Monitoring at the station documented 2/7 exceedences for turbidity.

A new listing will be added for turbidity at the lower sampling station

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above the confluence with Sulphur Creek. The thermograph exceeded the HQCWF criterion 82/1,796 times with a maximum temperature of 24°C. This site exceeded the draft Temperature Protocol for a one-time maximum temperature (23°C).

A new listing will be added for temperature

2002 ACTION: None. The Nutrient Assessment protocol was performed June 2000. This reach was determined not be nutrient enriched following the level one nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record.

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 5 of 17 exceedences of the turbidity criterion of 25 NTU using grab data, and 10 of 284 using sonde data. There were 0 of 284 measurements of pH outside of the criterion range of 6.6 to 8.8 using sonde data. A thermograph at the station above Sulphur Creek recorded a max temp of 23.01 degrees C. There were 0 of 16 exceedences using grab data. There were 14 of 22 exceedences of the chronic aluminum criterion. **Therefore, turbidity and temperature will remain, and aluminum will be added as a cause of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed. **TMDLs have already been written for turbidity and temperature**.

Rio Cebolla (Fenton Lake to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_52

Previously listed for temperature, stream bottom deposits and total phosphorus. For temperature, two of three stations have an exceedences ratio of 1/5. The other station has a ratio of 0/5. These

stations will be given a Full Support, Impacts Observed. For total phosphorus, the ranking is based on station ratios of 0/6, 0/5, and 1/5. Station MRG106.008045 will be given a Full Support, Impacts Observed while the others are listed as full support.

1998 ACTION: Temperature and phosphorus were removed as causes of non-support. Stream bottom deposits were retained as a cause of non-support.

2000 ACTION:

Temperature: One thermograph was deployed on this reach. The thermograph was deployed above the Seven Springs Campground. The thermograph exceeded the HQCWF criterion 54/1,587 times with a maximum temperature of 22.5°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 4hours, but no more than six hours in a 24-hour cycle, and for no more than three consecutive days.

Temperature will be added as a cause of non-support for this reach of the Rio Cebolla

Stream Bottom Deposits: This stream is classified and an F5 stream type. The % fines <2mm is 42% and the mean embeddedness is 75%. This is a severely impacted stream substrate.

Stream bottom deposits will remain on the list as a cause on non-support

2002 ACTION: None

2004 ACTION: None

Rio Cebolla (Rio de las Vacas to Fenton Lake)
WQS: 20.6.4.108 AU: NM-2106.A_50

Previously listed for pH, stream bottom deposits and total ammonia. The listing for pH is supported as 3/5 pH samples collected in a 1989 survey were outside the allowable range. This reach will be listed as not supported for pH. For total ammonia, 0/5 samples collected as part of the same survey exceeded the chronic criteria. This segment is fully supporting for total ammonia.

1998 ACTION: Ammonia was removed as a cause of non-support. Stream bottom deposits and pH were retained as causes of non-support.

2000 ACTION:

Stream Bottom Deposits: This E4b stream is characterized by a single station above the confluence with the Rio de las Vacas. The % fines >2mm is 28% and the mean embeddedness is 53%. This would suggest a moderately impaired stream.

Stream bottom deposits will remain on the list as a cause on non-support

pH: There was an exceedence ratio of 0/7 for pH.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on this reach of the Rio Cebolla.

2002 ACTION: None

2004 ACTION: None

Rio de las Vacas (Rio Cebolla to Rito de las Palomas)
WQS: 20.6.4.108 AU: NM-2106.A_40

Previously listed for temperature, stream bottom deposits and total ammonia. For total ammonia, 0/9 samples from two stations collected in 1989 exceeded the criteria. Temperature exceedences (3/5) were reported at station MRG106.008535. This reach is not supported for temperature. Station MRG106.008515 was full support for temperature.

1998 ACTION: Ammonia was removed as a cause of non-support. Temperature and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Temperature: Three thermographs were deployed on this reach. The upper thermograph was deployed above the Rio de las Vacas Campground and had an exceedence ration of 3/1,792 with a maximum temperature if 21.0°C. This reach is in accordance with the Temperature Protocol. The middle thermograph exceedence ratio was 375/1,793 with a maximum temperature of 27°C. This reach is not in accordance with the Temperature Protocol. The lower thermograph was deployed above the confluence with the Rio Cebolla. The exceedence ratio at this site was 218/1,795 with a maximum temperature of 24.5°C. This reach is not in accordance with the Temperature Protocol.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for temperature on the upper reach of the Rio de las Vacas.

Temperature will remain listed as a cause of non-support for the lower site
A temperature TMDL was written for the middle site.

Stream Bottom Deposits: Three stations characterized this reach. At the upper station, this stream is classified as a C3 stream type with a % fines of 6 and a mean embeddedness of 42%. Station 2 located above the Girl Scout Camp is classified as a C4 stream type with a % fines of 16 and an embeddedness value of 38. Station 3 located above the confluence with the Rio Cebolla is a B3 stream type with a % fines of <2mm of 12 and an embeddedness value of 32%. This classifies as good stream bottom substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on this reach.

Total Organic Carbon (TOC): There are three water quality monitoring stations on this reach. The exceedence ratios for TOC were 4/8, 3/7 and 4/7.

TOC will be added to this reach a cause of non-support for this reach

2002 ACTION: In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

Rio Guadalupe (Jemez River to confl with Rio Cebolla)
WQS: 20.6.4.108 AU: NM-2106.A_30

Previously listed for conductivity, turbidity, stream bottom deposits and fecal coliform. Two stations from a 1987 survey were used in the assessment for conductivity. Station 08323000 was 1/1 for conductivity exceedences making it Full Support, Impacts Observed. Station MRG106.007501 was 2/11 or partially supported for conductivity. Turbidity measurements are available from one station. Station MRG106.007501 is Full Support, Impacts Observed (1/6) for turbidity. Fecal coliform data are also available from one station. Station MRG106.007501 has a 1/2 ratio of exceedences. Per the assessment protocol, this reach is Full Support, Impacts Observed for fecal coliform and turbidity.

1998 ACTION: Turbidity and fecal coliform were removed as causes of non-support. Conductivity and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Conductivity: Exceedence ratios for conductivity on this reach were 1/7. As per the Assessment Protocol, the exceedence percentage of 14 indicates a fully supporting reach.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for conductivity on the Rio Guadalupe.

Turbidity: Turbidity exceedences at the station just above the confluence with the Jemez River had a ratio of 2/7. On the same days as the high turbidity at this station, turbidity measurements were taken just below the Gillman Tunnels. Turbidity here was well below the criterion at 14 NTU. As a result, turbidity will be listed as a cause of non-support from the confluence with the Jemez River up to the box.

A TMDL was developed for the Rio Guadalupe to address turbidity.

Stream Bottom Deposits: This stream is typified by two stations. The station Rio de las Vacas above the Rio Cebolla, a Rosgen B3c stream type with a % fines <2mm of 11%, is typical of the stream in the upper box area. Below the Gillman Tunnels, the stream leaves the hard rock canyon to a sandstone environment. A cross section below this developed area and above the confluence with the Jemez River is a Rosgen B4c stream type with a % fines <2mm of 28% indicating a moderate level of

impairment.

A TMDL was developed for the Rio Guadalupe to address stream bottom deposits from the Gillman Tunnels down to the confluence with the Jemez River only.

Fecal Coliform: Fecal coliform was removed from the 1998-2000 303(d) list but remained listed in the 1998 305(b) Report as full support, impacts observed (FSIO).

Add to the 305(b) report as FSIO.

Total Phosphorus: The exceedence ratio of TP for this reach was 2/6. Both exceedences were linked to higher sediment loads from this reach.

The Nutrient Assessment Protocol indicates no impairment due to nutrient loading on this reach.

Metals (Al chronic): The 4-day average concentration at this site was 262ug/l. There were no exceedences of the acute criterion for aluminum on this reach.

Aluminum (chronic) will be added to this reach as a cause of non-support

2002 ACTION: None. **A TMDL was prepared for chronic aluminum.**

2004 ACTION: None

Rito de los Indios (San Antonio Creek to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_24

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 1 of 17 exceedences of the chronic lead criterion and 7 of 17 exceedences of the chronic aluminum criterion. **Therefore, aluminum will be added as a cause of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed.

Rito Peñas Negras (Rio de las Vacas to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_42

Previously listed for temperature, turbidity and stream bottom deposits. There are no data, historical or otherwise, for this reach. Data collection began in Spring of 1998 on this reach under existing 104(b)(3) and 319(h) grant monies.

1998 ACTION: This reach will continue to be listed as partially supporting for temperature, turbidity and stream bottom deposits.

2000 ACTION:

Stream Bottom Deposits: This site on the lower RPN is an E4 stream type with a % fines <2mm of 27% and a mean embeddedness of 58%. This would suggest a moderately impaired stream substrate.

Stream bottom deposits will be retained as a cause of non-support.

Temperature: Three thermographs were deployed on this reach. The upper thermograph was deployed just below Pipeline Road and had an exceedence ratio of 9/1,847 with a maximum temperature if 21.5°C. This reach is in accordance with the Temperature Protocol. The middle thermograph exceedence ratio was 80/1,791 with a maximum temperature of 24°C. This reach is not in accordance with the Temperature Protocol. The lower thermograph had an exceedence ratio of 117/1,793 with a maximum temperature of 23.5°C. This reach is not in accordance with the Temperature Protocol.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for temperature on the upper reach of the Rito Peñas Negras.

Temperature will remain listed as a cause of non-support for the middle and lower sites

Turbidity: Turbidity at this station had an exceedence ratio of 0/7 samples.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Rito Peñas Negras.

Total Organic Carbon(TOC): The ratio of exceedences for TOC on this reach is 3/7.

TOC will be added as a cause of non-support for this reach

2002 ACTION: **TMDLs were developed for stream bottom deposits, temperature, and TOC**. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

San Antonio Creek (East Fork Jemez R to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_20

Previously listed for total phosphorus, temperature, turbidity, chlorine, stream bottom deposits and fecal coliform. There are two stations on this reach that were last sampled in 1987. For turbidity, the ratio of exceedences at the two stations was 0/11 or full support. The total phosphorus ratio at station MRG106.010010 is 2/12 (17%) or partially supported and 1/6 or Full Support, Impacts Observed at station MRG106.100001. The exceedence ratio for temperature at station MRG106.010010 was 3/12 or partially supported and 0/6 or full support at station MRG106.100001. Fecal coliform data are available at station MRG106.010010 only. Two samples were collected in 1987 both of which were well under the criteria. Fecal coliform is full support for this reach. 1/1 sample for chlorine at station MRG106.010010 was above the criteria. As per the assessment, the reach is Full Support, Impacts Observed for chlorine.

1998 ACTION: Turbidity, chlorine and fecal coliform were removed from the list as causes of non-support. Phosphorus, temperature and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Temperature: Two thermograph sites were established on this reach. The SA Creek@Battleship Rock Picnic

Areas site had an exceedence ratio of 84/1,797 with a maximum temperature of 22.5°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 6 hours. The SA Creek above SA Campground site had an exceedence ratio of 117/1,795 with a maximum temperature of 24.5°C. The site exceeded the Temperature Protocol maximum 1-time exceedence of 23°C.

Temperature will be retained as a cause of non-support

Total Phosphorus: Two sampling stations on this reach had a combined exceedence ratio of 0/15 for total phosphorus.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total phosphorus on San Antonio Creek.

Stream Bottom Deposits: San Antonio Creek is characterized by two stations. The upper station is a C4 type stream. The % fines <2mm is 12% and the mean embeddedness was 44% making it a good bottom substrate. The second station is located above the confluence with the East Fork of the Jemez River. The % fines at this station were 5%. This is assessed as being an excellent substrate.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for stream bottom deposits on San Antonio Creek.

Total Organic Carbon (TOC): There is an abbreviated data set for this parameter that shows both stations with a 1/3 exceedence ratio of the criterion. Additional analyses will be collected.

Add to the 305(b) report as FSIO.

Turbidity: Two sample stations were established on this reach. The station at Battleship Rock was 3/7 for turbidity exceedences. The station at SA Campground was also 3/7 exceedences for turbidity.

A new listing will be added for turbidity

2002 ACTION: None

2004 ACTION: **TMDLs were written for turbidity and temperature.** This reach was intensively surveyed during the Valle Caldera 2001-2002 special study.

There were 0 of 16 exceedences of the turbidity criterion of 25 NTU using grab data, and 8 of 570 using sonde data. **Therefore, turbidity will be removed and temperature will remain as causes of non support.** There were 282 of 570 measurements of pH outside of the criterion range of 6.6 to 8.8, and 182 of 570 exceedences of the DO criterion using sonde data. Grab DO data did not indicate impairment. A thermograph at the station below Warm Springs recorded a max temp of 29.09 degrees C. There were 0 of 17 exceedences using grab data. There were 10 of 19 exceedences of the chronic aluminum criterion. **Therefore, aluminum, dissolved oxygen, and pH will be added as causes of non support.** This reach will be listed as Category 5B because aluminum is naturally high in this watershed and the DO sonde and grab data conflict.

Sulphur Creek (Redondo Creek to headwaters)
WQS: 20.6.4.108 AU: NM-2106.A_22

This reach has extreme pH violations. At two stations on this reach the exceedences ratio is 2/2 and 6/6 for pH. The cause of this is unknown but is most likely from natural causes. The exceedences ratio for temperature is 1/6 which will be listed as Full Support, Impacts Observed. No other concerns were noted on this reach.

1998 ACTION: The reach will be listed with pH as the cause of non-support.

2000 ACTION:

pH: One sampling station was established on this reach. Monitoring at the station documented 6/7 exceedences for pH.

pH will remain listed as a cause of non-support

Conductivity: One sampling station was established on this reach. Monitoring at the station documented 3/8 exceedences for conductivity.

Conductivity will be added as a cause of non-support for this reach

Turbidity: One sampling station was established on this reach. Monitoring at the station documented 1/7 exceedences for Turbidity.

Add to the 305(b) report as FSIO.

2002 ACTION: None. **TMDLs were written for pH and conductivity**. A Use Attainability Analysis was submitted to EPA because the low pH values in this spring fed tributary are naturally occurring.

2004 ACTION: This reach was intensively surveyed during the Valle Caldera 2001-2002 special study. There were 19 of 19 exceedences of the chronic and acute aluminum criteria. **Therefore, aluminum will be added as a cause of non support.** There were 18 of 18 measurements of pH below the lower limit of 6.6 and 17 of 17 exceedences of the specific conductance criterion of 400 umhos/cm. **Specific conductance and pH will remain as causes of non support**. A UAA was prepared for pH. The conclusion is that "high quality coldwater fishery" is not an attainable use because of the pH. The conductivity criteria generally apply only to high quality coldwater, and so the conductivity criterion dropped out automatically with removal of the use. This change is expected during the 2004 triennial review. This reach will be listed as Category 5B because aluminum is naturally high in this watershed.

Vallecito Ck (Paliza Campground to headwaters)
WQS: 20.6.4.107 AU: NM-2105.5_21

2000 ACTION:

Temperature: One thermograph was deployed on this reach. The thermograph was deployed at Paliza Campground. The thermograph exceeded the HQCWF criterion 38/1,797 times with a maximum temperature of 21.5°C. This site exceeded the Temperature Protocol for hours of exceedence duration > 6 hours (7/21/98).

Temperature will be listed on this reach as a cause of non-support

2002 ACTION: There is a site-specific criterion of 25ºC. This temperature was never exceeded during thermograph deployment. Therefore, **temperature was removed as a cause of Non Support**. Also, the name was revised from "Paliza Creek from Paliza Campground to the headwaters."

2004 ACTION: None

Vallecito Creek (Perennial reaches abv Jemez Pueblo bnd)
WQS: unclassified AU: NM-2105.5_20

Previously listed for temperature, total ammonia, pH, stream bottom deposits and fecal coliform. 2/11 (18%) of the samples from surveys conducted in 1986-1987 were above the criteria for temperature. This listing will remain with a partially supporting status. For total ammonia 1/11 samples were above the chronic criteria value. This listing for nonsupport will be changed to Full Support, Impacts Observed. For pH, 6/11 samples were above the criteria. The not supporting listing for pH will remain. For fecal coliform, 1/1 samples exceeded the criteria. Per the assessment protocol, fecal coliform and ammonia are Full Support, Impacts Observed.

1998 ACTION: Fecal coliform and ammonia were removed as a cause of non-support. Temperature, stream bottom deposits and pH were retained as causes of non-support.

2000 ACTION:

Temperature: The exceedence ratio for temperature on this reach was 3/7.

Temperature will continue to be listed as a cause of non-support on this reach

pH: The exceedence ratio for pH on this reach was 0/7.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on Vallecito Creek.

Turbidity: The exceedence ratio for temperature on this reach was 5/7.

Turbidity will be added as a cause of non-support on this reach

Stream Bottom Deposits: Steam bottom deposits will continue to be listed as a cause of non-support on this reach.

2002 ACTION: According to SWQB staff survey notes, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to coldwater fishery use, so they do not apply to this reach. Also, the name was revised from "Vallecito Creek from the eastern Jemez Pueblo boundary to the Village of Ponderosa."

2004 ACTION: None

HUC 13020203 Rio Grande - Albuquerque

Rio Grande (Alameda Bridge to Santa Ana Pueblo bnd)
WQS: 20.6.4.106 AU: NM-2105.1_00

Previously listed as "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" and listed for metals (Al), total ammonia, chlorine, stream bottom deposits and fecal coliform. For aluminum, there are four stations for making the assessment. These stations have ratios of 2/7, 3/6, 2/8, and 2/8 for exceedences of the chronic screening criteria and no exceedences of the acute criteria. All of these data are from a 1991 SWQB survey. Additional information considered to be of greater confidence has recently been issued from the USGS 1994-1996 surveys of the Rio Grande from Isleta Pueblo to the Jemez River. In this database 0/57 Rio Grande samples were found to have dissolved aluminum levels greater than the chronic screening

criteria. This reach will be listed as full support for aluminum. For total ammonia there are six stations that may be used for the assessment. Generally, in a time frame prior to 1988, there were numerous exceedences of the chronic screening criteria for ammonia. In WQS 2105 there are two stations MRG105.005730 and 5740. At station 5730 there were 11/21 samples that exceeded the chronic screening criteria for ammonia from 1988 through 1992. From 1993 through 1997 there has been only one exceedence of the criteria (1/10). A similar pattern is seen at station 5740 where 5/20 1988-1992 samples exceeded the criteria but 0/13 within the last five years have exceeded the criteria. One four-day sampling event in 1988 documented a four-day chronic exceedence at station 5740 in 1988. There have been no four-day sampling events since then. In segment 2105.1 there are no six to ten year data. All data are from 1988 to 1992. Ratios at these stations are 3/19, 0/12, 4/16, and 2/21. Ammonia will continue to be listed as partially supporting until additional sampling information is available. For fecal coliform, in segment 2105, there have been 0/28 samples with values greater than the criteria value. In segment 2105.1, which has a more restrictive criterion, the ratios are 3/9, 1/7, 3/9, and 0/3.

1998 ACTION: Aluminum and stream bottom deposits were removed as causes of non-support. The reach continued to be listed as partially supported with ammonia, chlorine and fecal coliform listed as causes of non-support.

2000 ACTION:

Total Ammonia: The exceedence ratio for total ammonia on this reach was 0/58.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on the Middle Rio Grande.

Fecal Coliform: There are 12 sampling stations on this reach. Station 1, Rio Grande below Angostura Diversion (FS) exceedence ratio was 0/5, **Station 2, Rio Grande at Highway 44 Bridge (NS)** exceedence ratio was 2/5, Station 3, Bernalillo WWTF effluent discharge (FS) exceedence ratio was 0/5, **Station 4, Rio Grande above RRUC #3 (NS)** exceedence ratio was 2/5, **Station 5, RRUC #3 effluent discharge (FSIO)** exceedence ratio was 1/5, **Station 6, Rio Grande above RRUC #2 (NS)** exceedence ratio was 3/7, **Station 7, RRUC #2 effluent discharge (NS)** exceedence ratio was 7/7, **Station 8, Rio Grande above Alameda Bridge (FSIO)** exceedence ratio was 1/7, **Station 9, Rio Grande above Rio Bravo Bridge (NS)** exceedence ratio was 2/7, Station 10, Albuquerque WWTF effluent discharge (FS) exceedence ratio was 0/7, **Station 11, Rio Grande above I-25 Bridge (NS)** exceedence ratio was 2/7 **and Station 12, Rio Grande above Isleta Diversion (FSIO)** exceedence ratio was 1/7.

Fecal coliform will be retained as a cause of non-support for this reach

2002 ACTION: None**.** The original assessment unit "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" was split into two because they fall under two different water quality standard segments. A TMDL was prepared for fecal coliform.

2004 ACTION: None

Rio Grande (Isleta Pueblo bnd to Alameda Street Bridge)
WQS: 20.6.4.105 AU: NM-2105_50

Previously listed as "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" and listed for metals (Al), total ammonia, chlorine, stream bottom deposits and fecal coliform. For aluminum, there are four stations for making the assessment. These stations have ratios of 2/7, 3/6, 2/8, and 2/8 for exceedences of the chronic screening criteria and no exceedences of the acute criteria. All of these data are from a 1991 SWQB survey. Additional information considered to be of greater confidence has recently been issued from the USGS 1994-1996 surveys of the Rio Grande from Isleta Pueblo to the Jemez River. In this database 0/57 Rio Grande samples were found to have dissolved aluminum levels greater than the chronic screening criteria. This reach will be listed as full support for aluminum. For total ammonia there are six stations that may be used for the assessment. Generally, in a time frame prior to 1988, there were numerous exceedences of the chronic screening criteria for ammonia. In WQS 2105 there are two stations MRG105.005730 and 5740. At station 5730 there were 11/21 samples that exceeded the chronic screening criteria for ammonia from 1988 through 1992. From 1993 through 1997 there has been only one exceedence of the criteria (1/10). A similar pattern is seen at station 5740 where 5/20 1988-1992 samples exceeded the criteria but 0/13 within the last five years have exceeded the criteria. One four-day sampling event in 1988 documented a four-day chronic exceedence at station 5740 in 1988. There have been no four-day sampling events since then. In segment 2105.1 there are no six to ten year data. All data are from 1988 to 1992. Ratios at these stations are 3/19, 0/12, 4/16, and 2/21. Ammonia will continue to be listed as partially supporting until additional sampling information is available. For fecal coliform, in segment 2105, there have been 0/28 samples with values greater than the criteria value. In segment 2105.1, which has a more restrictive criterion, the ratios are 3/9, 1/7, 3/9, and 0/3.

1998 ACTION: Aluminum and stream bottom deposits were removed as causes of non-support. The reach continued to be listed as partially supported with ammonia, chlorine and fecal coliform listed as causes of non-support.

2000 ACTION:

Total Ammonia: The exceedence ratio for total ammonia on this reach was 0/58.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on the Middle Rio Grande.

Fecal Coliform: There are 12 sampling stations on this reach. Station 1, Rio Grande below Angostura Diversion (FS) exceedence ratio was 0/5, **Station 2, Rio Grande at Highway 44 Bridge (NS)** exceedence ratio was 2/5, Station 3, Bernalillo WWTF effluent discharge (FS) exceedence ratio was 0/5, **Station 4, Rio Grande above RRUC #3 (NS)** exceedence ratio was 2/5, **Station 5, RRUC #3 effluent discharge (FSIO)** exceedence ratio was 1/5, **Station 6, Rio Grande above RRUC #2 (NS)** exceedence ratio was 3/7, **Station 7, RRUC #2 effluent discharge (NS)** exceedence ratio was 7/7, **Station 8, Rio Grande above Alameda Bridge (FSIO)** exceedence ratio was 1/7, **Station 9, Rio Grande above Rio Bravo Bridge (NS)** exceedence ratio was 2/7, Station 10, Albuquerque WWTF effluent discharge (FS) exceedence ratio was 0/7, **Station 11, Rio Grande above I-25 Bridge (NS)** exceedence ratio was 2/7 **and Station 12, Rio Grande above Isleta Diversion (FSIO)** exceedence ratio was 1/7.

Fecal coliform will be retained as a cause of non-support for this reach

2002 ACTION: None**.** The original assessment unit "Rio Grande from the northern boundary of Isleta Pueblo to the southern boundary of Santa Ana Pueblo" was split into two because they fall under two different water quality standard segments. A TMDL was prepared for fecal coliform.

2004 ACTION: None

Rio Grande (Rio Puerco to Isleta Pueblo bnd)
WQS: 20.6.4.105 AU: NM-2105_40

Previous listed for metals (Hg) and stream bottom deposits. There are three stations for making the assessment. In 1994, these stations had a combined ratio of 0/9 for mercury upgrading the reach to full support. In a January 9, 1998 letter to NMED, Jim Brooks of the U.S. Fish & Wildlife Service, New Mexico Fishery Resources Office stated that "... a total maximum daily load for siltation in the middle and lower Rio Grande in New Mexico would not improve habitat conditions for the native fish fauna".

1998 ACTION: Metals (mercury) and stream bottom deposits were removed as causes of non-support, therefore the reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Rio Grande (San Marcial to Rio Puerco)
WQS: 20.6.4.105 AU: NM-2105_10

Previously listed for pesticides, stream bottom deposits and total ammonia. There have been 0/18 exceedences of the total ammonia chronic screening criteria in the past ten years. This reach should be upgraded to full support for total ammonia. In 1987 there was a 1/1 hit for chlordane at station MRG105.000125. There has been no follow-up sampling at this station. This station will be listed as Full Support, Impacts Observed. Two other stations on this reach have ratios of 0/1 and 0/8 for chlordane. These stations will be listed as full support. In a January 9, 1998 letter to NMED, Jim Brooks of the U.S. Fish & Wildlife Service, New Mexico Fishery Resources Office stated that "... a total maximum daily load for siltation in the middle and lower Rio Grande in New Mexico would not improve habitat conditions for the native fish fauna".

1998 ACTION: Stream bottom deposits and ammonia were removed as causes of non-support. The reach was upgraded to Full Support, Impacts Observed and therefore removed from the 303(d) list. It will be listed as Full Support, Impacts Observed on the 305(b) list for chlordane.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Tijeras Arroyo (Rio Grande to headwaters)
WQS: unclassified AU: NM-9000.A_001

Previously listed as partially supported for metals (Cd, Hg chronic) and nutrients. In 1984, there was a sewer break at Montessa Park that flowed into lower Tijeras Arroyo and made it into the Rio Grande. There are no STORET data available, but a report from ***Potter, D.U. 1984, titled, Rio Grande Water Quality Survey (August 28-September 4, 1984) in Response to a Sewer Line Break at Tijeras Arroyo on August 25, 1984. EID/SWQ-85/2. 52 p.,*** documents the spill and 1998 Actions taken to abate the pollution.

1998 ACTION: This arroyo will be removed from the 303(d) list as fixing the sewer line solved the problem.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

HUC 13020204 Rio Puerco

Nacimiento Creek (USFS bnd to San Gregorio Reservoir)
WQS: 20.6.4.109 AU: NM-2107.A_41

Previously listed for stream bottom deposits, nutrients, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits and nutrients as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Rio Puerco (non-pueblo lands Rio Grande to Rito Olguin)
WQS: 20.6.4.105 AU: NM-2105_20

Previously listed for stream bottom deposits. The Rio Puerco from the mouth on the Rio Grande to Rito Olguin (Rio Grande, 2105), E, was listed for not fully supporting the use of limited warmwater fishery (LWWF) and the cause of not meeting this use was listed as stream bottom deposits. The definition of a LWWF on page 41, of the ***State of New Mexico Standards for Interstate and Intrastate Streams,*** is as follows:

LWWF a stream reach where **intermittent** flow may severely limit the ability of the reach to sustain a natural fish population on a continuous annual basis; or a stream where historical data indicate that water temperature may routinely exceed 32.2EC (90EF)

NMED/SWQB solicited input from New Mexico Department of Game & Fish, U.S. Fish & Wildlife Service, University of New Mexico, Department of Biology and New Mexico State University, Department of Fishery and Wildlife Sciences concerning the stream bottom deposits (siltation) issues. The following questions were asked of all of the above mentioned entities. Only the U.S. Fish & Wildlife Service responded in writing:

Question from NMED/SWQB to the U.S. Fish & Wildlife Service in a letter dated January 12, 1998:

> The questions being asked are: Does siltation, in and of itself, cause impairment to the fisheries of the lower and middle Rio Grande? Alternatively, have the native fish(es) adapted to a silty aquatic habitat, leaving other factors such as flows, nutrient

loading, toxics etc., which may contribute more to the cause(s) of impairment to the fishery designated use?

Response, from Jennifer Fowler-Propst, Field Supervisor, in summation, page 5 of the letter:

> "The dilemma is that siltation is needed to provide the sandy substrate habitat required by the native fishes; and conversely, high levels of suspended sediments may be harmful to some fish and other aquatic species. There is almost no scientific information to demonstrate that concentrations of suspended sediment and amounts of siltation are harmful to New Mexico fishes; and to arbitrarily set TMDLs may not be very useful for protection of the lower and middle Rio Grande fisheries resources".

Question from NMED/SWQB to the U.S. Fish & Wildlife Service in a letter dated February 2, 1998:

> Our question, in general, is: Does siltation in-and-of itself, with all other things being equal, contribute to or directly cause impairment to the fishery use for LWWF and WWF?

Response, from Jennifer Fowler-Propst, Field Supervisor, in summation, page 2, paragraph 3, of the letter:

> "There are many intermittent streams in New Mexico including, for example, the Rio Puerco and Rio Salado. These streams are dry most of the year with the exception of high runoff events generally during the summer thunderstorms. These streams have very high suspended sediments and transport high sediment loads to the Rio Grande. The degree of siltation within intermittent streams and rivers, and its effect on limited warmwater fisheries is irrelevant, since perennial waters are required for fish survival".

1998 ACTION: Stream bottom deposits was removed as a cause of non-support and the reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None. Name was revised to acknowledge tribal lands.

2004 ACTION: None

Rio Puerco (Rito Olguin to headwaters)
WQS: 20.6.4.109 AU: NM-2107.A_40

Previously listed for temperature and stream bottom deposits. The exceedence ratios at two stations on this reach are 4/6 and 4/5.

1998 ACTION: The listing was not changed.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Rito Leche (Perennial reaches above Rio Puerco)
WQS: 20.6.4.109 AU: NM-2107.A_43

Previously listed for stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

San Pablo Canyon (Puerco to headwaters)
WQS: 20.6.4.109 AU: NM-2107.A_41

Previously listed for turbidity, plant nutrients and stream bottom deposits. There is only one data point in the STORET data base for turbidity on this reach. A ratio of 1/1 will be listed as Full Support, Impacts Observed until additional information can be collected for a more complete assessment.

1998 ACTION: Per the assessment protocol, turbidity was removed as a cause of non-support. Plant nutrients and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

HUC 13020207 Rio San Jose

Bluewater Creek (Navajo Nation bnd to headwaters)
WQS: 20.6.4.109 AU: NM-2107.A_01

Previously listed for metals (Al, Cd, Pb), temperature, turbidity, total phosphorus, and stream bottom deposits. There are five stations that provide assessment data for this reach. For aluminum, there were multiple exceedences of acute criteria at four out of five stations within five years. There were no exceedences of the acute levels for lead. There were limited exceedences of the lead chronic screening criteria. Two stations, MRG106.005010 and MRG106.005030, had exceedence ratios of 1/7 and 1/5 respectively. One exceedence of these criteria is allowable within a 5 year period. Therefore these reaches will be listed as Full Support, Impacts Observed for lead. There were no exceedences of the acute criteria or chronic screening criteria for cadmium at any of the five stations. Temperature is available for four stations. At station MRG106.005045, the exceedences ratio was 3/7 (43%) or not supporting. At stations 5040, 5035, and 5020 the ratios were 1/10, 2/20 and 2/6 respectively. Turbidity is similar. Turbidity will be listed as not supporting. Total phosphorus is partially supporting at six out of nine stations.

1998 ACTION: Lead and cadmium will be removed as causes of non-support on the 1998 303(d) list. The reach will be listed on the 1998 305(b) list as Full Support, Impacts Observed for lead. The reach continues to be included on the 1998 303(d) list for aluminum, temperature, turbidity, and stream bottom deposits.

2000 ACTION: None

2002 ACTION: The name was changed to Bluewater Creek (Navajo Nation bnd to headwaters) to correct the assessment unit definition for tribal jurisdiction. The size was also corrected.

2004 ACTION: None

Bluewater Creek (Rio San Jose to Navajo Nation bnd)
WQS: 20.6.4.109 AU: NM-2107.A_01

Previously listed for total phosphorus due to exceedences at six out of nine stations.

2000 ACTION: There is no longer a phosphorus standard so the reach will be listed for plant nutrients until further information is collected.

2002 ACTION: The name was changed to Bluewater Creek (Rio San Jose to Navajo Nation bnd) to correct the assessment unit definition for tribal jurisdiction.

2004 ACTION: None

Rio Moquino (Laguna Pueblo to Seboyeta Creek)
WQS: 20.6.4.109 AU: NM-2107.A_10

Previously listed for temperature and stream bottom deposits. There are no ten-year temperature data. Using 1978 to 1980 data the temperature exceedences ratio is 3/10 or not supporting for temperature.

1998 ACTION: Temperature and stream bottom deposits were retained on the list as causes of non-support.

2000 ACTION: None

2002 ACTION: None. Name was revised to remove tribal portion.

2004 ACTION: None

Rio Paguate (Laguna Pueblo bnd to headwaters)
WQS: 20.6.4.109 AU: NM-2107.A_30

New listing for metals (Se, Hg), stream bottom deposits and temperature. For selenium 0/16 samples were greater than the acute criteria, but 16/21 within the last ten years exceeded the chronic screening level. This reach is Not Supporting for selenium. For mercury there have been no exceedences of the acute criteria within the last ten years. The exceedences ratio for mercury in the last five years is 0/4 and 1/21 within the last ten years. This reach will be upgraded to Full Support for mercury. Temperature data are limited at several of the stations. USGS station 08349800 is the only station with data within the last ten years. This station is 2/5 within five years and 5/13 within six to ten years. This segment will be listed as Partial Support for temperature.

1998 ACTION: Mercury was removed as a cause of non-support. The reach will be listed as partially supported with selenium, temperature and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None. Name revised from "Rio Paguate from inflow to Paguate Reservoir to headwaters" to removed tribal portions.

2004 ACTION: None

Rio San Jose (Horace Springs to Grants WWTP)
WQS: unclassified AU: NM-9000.A_003

Listed for metals (Hg, Cd) and total phosphorus. This stream segment is listed as unclassified. The total phosphorus criterion applies only to high quality coldwater fisheries so the total phosphorus listing should be removed. Within the last five years 0/7 samples for mercury exceeded the detection level of 0.1 Φg/l. For cadmium the ratios are 0/7 within five years and 0/9 from 5-10 years.

1998 ACTION: Total phosphorus, mercury and cadmium have been removed as causes of non-support for this reach. This reach is not included in the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Rio San Jose (USGS gage at Correo to Horace Springs)
WQS: Unclassified (state standards do not apply) AU: not in database (tribal lands)

New listing for metals (Hg), temperature, dissolved oxygen, turbidity, total phosphorus, stream bottom deposits and pH. There are very limited data sets for this reach within ten years. Because of this, data from 1986 to present were used for the assessment. The mercury ratios at two stations are 0/2 and 0/1. The temperature ratio at station MRG107.002505 is 0/1, station 2510 is 2/6, and station 2515 is 3/10. Temperature will be assigned an assessment of partial support at stations 2505 and 2510 and not supporting at station 2515. Dissolved oxygen ratios at the three stations are 0/1 at station 2505, 1/6 at station 2510, and 1/10 at station 2515. Dissolved oxygen will be listed as full support at station 2505 and Full Support, Impacts Observed at stations 2510 and 2515. Turbidity data are available only at station 2515. Here the exceedence ratio was 0/9. Total phosphorus ratios are 0/1 at station 2505, 3/4 at station 2510, and 8/8 at station 2515. Station 2505 will be listed as full support and stations 2510 and 2515 will be listed as not supporting. For pH, the ratios are 0/1 at station 2505, 0/5 at station 2510, and 3/10 at station 2515. Stations 2505 and 2510 will be listed as full support for pH while station 2515 will be listed as not supporting.

1998 ACTION: Mercury, dissolved oxygen and turbidity were removed as causes of non-support. Temperature, phosphorus, pH and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: This reach is 100% on tribal land. Deleted from NM list.

2004 ACTION: None

HUC 13020211 Elephant Butte Reservoir

Alamosa Creek (Perennial reaches abv Monticello diversion)
WQS: 20.6.4.103 AU: NM-2103.A_30

Listed for reduction of riparian vegetation and streambank destabilization.

1998 ACTION: The reach continues to be listed as Partially Supporting on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Elephant Butte Reservoir
WQS: 20.6.4.104 AU: NM-2104_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

HUC 13030101 Caballo

Caballo Reservoir
WQS: 20.6.4.102 AU: NM-2102.B_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Percha Creek (Perennial reaches Caballo R to M Fork)
WQS: 20.6.4.103 AU: NM-2103.A_20

Previously listed for nutrients and stream bottom deposits. There are two sampling stations on this reach. There are no supporting data to justify the nutrients listing per the document titled, ***Indices of Aquatic Community Integrity of Percha and Tierra Blanca Creeks in Perennial Segments Administered by the US Bureau of Land Management, Sierra County, New Mexico***. E.D. Weber and R.A. Cole, Department of Fishery and Wildlife Sciences, New Mexico State University, Las Cruces, New Mexico, January 20, 1996.

1998 ACTION: Nutrients will be removed as a cause of non-support for this reach. The reach continues to be listed as Partially Supporting on the 1998 303(d) list with stream bottom deposits as the cause.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

LOWER RIO GRANDE (TX border to Elephant Butte)

HUC 13030102 El Paso-Las Cruces

Rio Grande (Leesburg Dam to Percha Dam)
WQS: 20.6.4.101 AU: NM-2101_10

Previously listed under "Rio Grande from Leesburg Dam to Caballo Reservoir" and listed for pH. There are two stations in this reach with pH data. All data are from a 1989 survey. The station designated as LRG101.000185 has an exceedence ratio of 2/5. Station LRG1.000180 has an exceedences ratio of 0/5. This reach will be listed as partially supporting for pH from station LRG101.000185 to the Caballo Reservoir dam.

1998 ACTION: The reach was retained with pH listed as the cause of non-support.

2000 ACTION: Rio Grande from Leasburg Dam to Caballo Dam (Rio Grande, 2101, 2102), E, Partially Supported, (LRG1-20000). Removed from the list due to incorrect listing (by USGS) of a pH value of 9.3. See letter from USGS.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on the Lower Rio Grande.

2002 ACTION: None**.** The original assessment unit "Rio Grande from Leesburg Dam to Caballo Reservoir" was split into two because they fall under two different water quality standard segments.

2004 ACTION: None

Rio Grande (Percha Dam to Caballo Reservoir)
WQS: 20.6.4.102 AU: NM-2102.A_00

2004 ACTION: Previously listed under "Rio Grande from Leesburg Dam to Caballo Reservoir" and listed for pH. The original assessment unit was split into two because they fall under two different water quality standard segments. This AU is only 1 mile long.

Rio Grande (Texas border to Leesburg Dam)
WQS: 20.6.4.101 AU: NM-2102_00

Previously listed for total ammonia, chlorine, pH and stream bottom deposits. The data set for total ammonia includes data collected from 14 stations during sampling events in 1988, 1991, 1993, 1994,

1995, 1996, and 1997. Several stations show various levels of impacts in the data greater than five years old. For data collected within the last five years the aggregate ratio of exceedences to samples is 0/152. These data support removal of total ammonia as a cause of nonsupport. Chlorine data in STORET is very limited there are no stations with greater than one chlorine exceedence recorded. Additional data was collected in January, 1998. All values were below the field quantification levels of the instrument and only 1/53 exceeded the criteria. The reach should be listed as fully supporting chlorine. There are eleven stations with pH data. The aggregated ratio of criteria exceedences to samples for pH is 1/138. In a January 9, 1998 letter to NMED, Jim Brooks of the U.S. Fish & Wildlife Service, New Mexico Fishery Resources Office stated that "... a total maximum daily load for siltation in the middle and lower Rio Grande in New Mexico would not improve habitat conditions for the native fish fauna".

1998 ACTION: The reach will be listed for 1.7 miles of unknown toxicity.

2000 ACTION:

Rio Grande from NM-TX border to Leasburg Dam, (Rio Grande, 2101), E, Partially Supported. Removed from the list due to findings from Tetra Tech (Jerry Diamond) that unknown toxicity in this reach is not a source of impairment and a TMDL is not necessary at this time. See accompanying letter from Tetra Tech.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for unknown toxicity on the Lower Rio Grande.

2002 ACTION: None

2004 ACTION: The current WQS segment states "…The main stem...from the international boundary and water commission [IBWC] sampling station above American Dam upstream to one mile below Percha Dam." It is SWQB's current understanding that the IBWC station at Courchesne Bridge (station #13272) is the one referred to in this definition. This station and point on the Rio Grande is actually located in Texas. There is also a second International Boundary and Water Commission (IBWC) station above American Dam (station #13276). SWQB has proposed in the 2004 triennial review to change the end point to the international border with Mexico, which should clarify things, and will include a few small reaches of the Rio Grande below Courchesne Bridge which are in New Mexico or form a shared border with Texas that are currently unclassified. The common point shared by the borders of New Mexico, Texas and Mexico is at the center of the Rio Grande just below American Dam.

The IBWC submitted data for consideration during the development of the 2004-2006 list. This data meets QA requirements noted in the Assessment Protocol. The single sample fecal coliform criterion of 400 cfu/100mL was exceeded 144 of 272 (53%) times at station IBWC 13272 (Rio Grande 1.7 miles upstream of American Dam near El Paso, TX) and 0 of 29 (0%) times

at station IBWC 13276 (Rio Grande upstream of East Drain near Anthony, NM). The City of Las Cruces data indicates 17 of 108 exceedences above the Las Cruces WWTP and 6 of 108 exceedences downstream of the WWTP. El Paso Community College data indicates 31 of 38 exceedences at Sunland Park. NMSU data indicates 6 of 23 exceedences. **Therefore, this AU will be listed for fecal coliform**.

This difference in exceedence rates at various locations within the current assessment unit indicates that it may be appropriate to split the assessment unit at some point between Anthony and El Paso. SWQB is in the process (2004) of conducting an intensive water quality survey of the Lower Rio Grande from Elephant Butte to the Texas border. The results of this study, along with IBWC data and data collected by other entities that meets QA requirements, will be used to refine this assessment unit into two or more assessment units as appropriate for the 2006-2008 listing cycle.

SOUTHWEST CLOSED BASIN

HUC 13030202 Mimbres

Bear Canyon Reservoir
WQS: 20.6.4.504 AU: NM-2504_30

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION:

Bear Canyon Reservoir was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982*** and a report titled***, Lake Water Quality Assessment Surveys for Selected New Mexico Lakes, 1996)*** by hypolimnetic dissolved oxygen depletion and blue-green algal blooms during the summer. Chlorophyll a concentrations were exceedingly high during the summer, 128ug/l at the dam. Nitrogen concentrations exceeded 2 mgN/l in the photic zone, representing the highest observed nitrogen concentration. During the fall both the nutrient and chlorophyll concentrations and pH decreased considerably, while moderate stratification remained. Phosphorous was limiting or co-limiting in all seasons.

Although the data for this reservoir is dated, it is still listed in the State's 305(b) Report as impaired for dissolved oxygen, nutrients and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None.

Cold Springs Creek (Hot Springs Creek to headwaters)
WQS: 120.6.4.803 AU: NM-2803_11

Listed for undetermined metals. Water samples were collected upstream of Cold Springs Creek and downstream of a sediment retention basin in November 1992 and February 1993 and analyzed for metals. Concentrations of dissolved copper (1.20 and 0.60 mg/L) and zinc (0.20 mg/L) exceeded acute criteria that indicate that the acute criteria would be exceeded in the receiving stream.

1998 ACTION: This reach is included in the 1998 303(d) list as not supported for copper and zinc.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was to be surveyed as part of the 2002 Mimbres intensive survey. There was no flow during the entire survey. Only livestock watering and wildlife habitat uses apply. 1993 values did not exceed the zinc livestock watering criteria 25 mg/L. The copper criterion of 0.5 was exceeded in 1993. Neither criterion were exceeded in a 1998 sample event (<0.01 mg/L copper and 0.02 mg/L zinc). **Therefore, copper and zinc were removed as causes of non support.**

Gallinas Creek (Mimbres River to headwaters)
WQS: 20.6.4.803 AU: NM-2803_20

Previously listed for temperature, fecal coliform, and total ammonia. There is only one sample station on this reach. All data are from a 1990 and 1995 surveys. For temperature, 1/2 of the samples taken in the 1990 survey exceeded the criteria, while 4/6 of the samples taken in the 1995 survey exceeded the criteria. For fecal coliform, 0/1 of the samples taken in the 1995 survey exceeded the criteria. For total ammonia, 0/6 of the samples taken in the 1995 survey exceeded the criteria.

1998 ACTION: Total ammonia will be removed as a cause of non-support for this reach. Fecal coliform will be dropped as a cause of non-support on the 303(d) list and will be added to the 305(b) list as Full Support, Impacts Observed. The reach will continue to be listed on the 1998 303(d) report as Partially Supported for temperature.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was to be surveyed as part of the 2002 Mimbres intensive survey. The station "Gallinas Creek above Mimbres" was dry during the entire survey and the stations "Gallinas Creek @ lower CG near 152" was dry during 6 of 8 sampling events. Only livestock watering and wildlife habitat uses apply, **therefore temperature was removed as a cause of non support.** This AU will be listed as category 4C because irrigation diversions are altering the flow.

Hanover Creek (Whitewater Creek to headwaters)
WQS: unclassified AU: NM-2803_31

After consultation with staff from the NMED Silver City Office, Nonpoint Source Pollution Section of the SWQB, comments from the New Mexico Mining Association and Phelps Dodge Mining Company, it has been determined that this reach of Hanover Creek (Hanover Creek from the

headwaters to Highway 152 Bridge) is ephemeral and should be removed from the 1998-2000 303(d) List as an impaired waterbody.

1998 ACTION: It has been dropped from the 1998 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Hot Springs Creek (Mimbres River to the headwaters)
WQS: 20.6.4.803 AU: NM-2803_10

Listed for reduction of riparian vegetation and streambank destabilization. There is no applicable data to support any listing on this reach. This is also an intermittent stream that flows only during rain events.

1998 ACTION: This reach will be retained on the 303(d) list with a cause of unknown.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was to be surveyed as part of the 2002 Mimbres intensive survey. There was no flow during the entire survey. Only livestock watering and wildlife habitat uses apply. **Unknown was removed as a cause of non support.**

Mimbres R (Perennial reaches downstream of Willow Springs)
WQS: 20.6.4.803 AU: NM-2803_00

Previously listed for metals (Al), temperature, fecal coliform and stream bottom deposits. There are three sampling stations on this reach. All data are from 1990 and 1995 surveys. For metals, at station SWC803.000105, 0/1, of the samples exceeded the criteria in the 1990 survey, while 1/2 of the samples taken in the 1995 survey exceeded the criteria. At station SWC803.002501, 0/7 of the samples taken in 1990 exceeded the criteria, while 0/3 of the samples taken in 1995 exceeded the chronic screening level indicating Full Support, Impacts Observed. At station SWC803.002530, 0/1 of the samples taken in 1990 exceeded the criteria, while 0/3 of the samples taken in 1995 exceeded criteria. For temperature, at station SWC803.000105, 1/1 of the samples exceeded the criteria in the 1990 survey, while 2/3 of the samples taken in 1995 exceeded criteria. At station SWC803.002501, 3/4 of the samples taken in 1990 exceeded the criteria, while 5/9 of the samples taken in 1995 exceeded criteria. At station SWC803.002530, 3/5 of the samples taken in 1990 exceeded the criteria, while 1/9 of the samples taken in 1995 exceeded criteria. For fecal coliform, at station

SWC803.000105, 0/0 of the samples exceeded the criteria in the 1990 survey, while 0/1 (0%) of the samples taken in 1995 exceeded criteria. At station SWC803.002501, 1/1 of the samples taken in 1990 exceeded the criteria, while 0/2 of the samples taken in 1995 exceeded criteria. At station SWC803.002530, 2/2 of the samples taken in 1990 exceeded the criteria, while 0/2 of the samples taken in 1995 exceeded criteria. There are three 1995 biological stations on this reach. One below San Lorenzo was 75%, another at Mimbres was 68% and another above the Gallinas River confluence was FS 81%. It is believed that these data may be more influenced by low flow conditions than water quality.

1998 ACTION: Fecal coliform and aluminum will be removed as causes of non-support for this reach, but will be added to the 305(b) list as Full Support, Impacts Observed for these parameters. The reach will continue to be included in the 303(d) list as Not Supported for temperature and stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Mimbres River (Perennial reaches downstream of Sheppard Canyon)," the name was changed to match the WQS break and use a hydrologic break. This reach was intensively surveyed as part of the 2002 Mimbres study. A pebble count and benthic macroinvertebrate survey was performed at the Mimbres @ USGS gage site and at station Dwyer near Rancho del Rio. There were 10% fines and 17% fines, respectively. The benthic macroinvertebrate data is not available at the time of this writing, but is irrelevant to the SBD listing decision (according to the Stream Bottom Deposit Assessment Protocol) because the fines are 20% or less. **Therefore, stream bottom deposits will be removed as a cause of non support.** There were 9 of 23 exceedences of the fecal coliform criterion. Thermographs at the USGS gage site and Gallinas site recorded 296 of 2862 and 296 of 2861 hourly readings greater than 24 degrees C, respectively. **Therefore, temperature will remain and fecal coliform will be added as a cause of non support.** This reach will be listed as Category 5B because CWF with WQS of 20 degrees C may not be appropriate.

Mimbres R (Perennial reaches Willow Springs to Cooney Cny)
WQS: 20.6.4.804 AU: NM-2804_00

Listed for metals (Al), dissolved oxygen and stream bottom deposits. There are three sampling stations on this reach. All data are from 1986, 1990 and 1995 surveys. For aluminum, at station 08477110, 0/2 of the samples exceeded the criteria in the 1986 survey. At station SWC804.003035, 0/1, of the samples exceeded the criteria in the 1990 survey, while 0/4 of the samples taken in the 1995 survey exceeded the criteria. At station SWC804.006048, 0/1 of the samples taken in 1990 exceeded the criteria, while 1/4 of the samples taken in 1995 exceeded criteria. For dissolved oxygen, at station 08477110, 0/4 of the samples exceeded the criteria in the 1986 survey. At station

SWC804.003035, 0/5, of the samples exceeded the criteria in the 1990 survey, while 0/9 of the samples taken in the 1995 survey exceeded the criteria. At station SWC804.006048, 0/3 of the samples taken in 1990 exceeded the criteria, while 2/5 of the samples taken in 1995 exceeded criteria. For temperature (not previously listed), at station 08477110, 1/5 of the samples exceeded the criteria in the 1986 survey. At station SWC804.003035, 4/5, of the samples exceeded the criteria in the 1990 survey, while 4/9 of the samples taken in the 1995 survey exceeded the criteria. At station SWC804.006048, 0/3 of the samples taken in 1990 exceeded the criteria, while 0/9 of the samples taken in 1995 exceeded criteria. There is one 1995 biological assessment on this reach. The station at Cooney Campground was 56% of the reference site.

1998 ACTION: Aluminum will be removed as a cause of non-support for this reach and will be placed on the 305(b) list as Full Support, Impacts Observed. Dissolved oxygen will be kept as a cause of non-support for station 6048. Temperature will be added as a cause of non-support at station 3035. Stream bottom deposits will be retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Mimbres River (Sheppard Canyon to Cooney Campground)," the name was changed to match the WQS break and use a hydrologic break. This reach was intensively surveyed as part of the 2002 Mimbres study. A pebble count and benthic macroinvertebrate survey was performed at the Nature Conservancy. This station was used as a reference for the lower AU. There were 20% fines. The benthic macroinvertebrate data is not available at the time of this writing, but is irrelevant to the SBD listing decision (according to the Stream Bottom Deposit Assessment Protocol) because the fines are 20% or less. **Therefore, stream bottom deposits will be removed as a cause of non support.** There were 2 of 10 dissolved oxygen measurements lower than the 6.0 mg/L criterion. Thermographs at the upper Nature Conservancy site and lower Nature Conservancy site recorded 0 of 2839 and 280 of 2835 hourly readings greater than 23 degrees C, respectively. The maximum temperature at the upper stie was 18.57 degree C. **Therefore, dissolved oxygen and temperature will remain and as causes of non support.** This reach will be listed as Category 5B because HQCWF with WQS of 20 degrees C may not be appropriate.

CENTRAL CLOSED BASIN

HUC 13050003 Tularosa Valley

Three Rivers (Perennial HWY 54 to USFS except Mescalero)
WQS: 20.6.4.802 AU: NM-2802_00

Previously listed for temperature, conductivity, salinity and total phosphorus. Temperature data from 1987 at station CCB802.002025 shows a 4/5 exceedence ratio and a 5/5 exceedence ratio at station CCB802.002015. Conductivity data from 1987 at station CCB802.002025 shows a 5/5 exceedence ratio and a 4/4 exceedence ratio at station CCB802.002015.

1998 ACTION: Salinity (no standard) and total phosphorus will be removed as a cause of non-support for this reach. Temperature and conductivity will be listed as causes of non-support at stations CCB802.002025 and CCB802.002015.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Tularosa Creek (Tularosa to Mescalero Apache bnd)
WQS: 20.6.4.801 AU: NM-2801_01

Listed as a LWWF (priority 7 reach) and for metals (Al, Hg). The Bureau received three letters from concerned groups in the area pertaining to this particular waterbody. Questions about the designated use prompted the Bureau to look into the applicability of the LWWF designation. A fish hatchery located on the river in Mescalero and operated by the U.S. Fish and Wildlife Service as well as other information contained in the letters led to a change in the designated use from a LWWF to a CWF. There is one sampling station (08481500) on this reach. All data are from 1989, 1990, 1991, 1992 and 1993 surveys. For aluminum (Al), 2/17 samples taken from 1989 to 1992 exceeded the criteria while 0/3 sample in the 1993 survey exceeded the criteria. For mercury (Hg), 1/10 samples taken from 1989 to 1991 exceeded the criteria. The designated use is fully supported for aluminum (Al) while it is fully supported, impacts observed for mercury (Hg).

1998 ACTION: This reach will be restored to the 303(d) list as a result of our decision to list all reaches where Riparian Habitat was moved as a Cause of non-support.

2000 ACTION: None

2002 ACTION: None. Revised name to acknowledge tribal jurisdiction.

2004 ACTION: None

PECOS RIVER BASIN

UPPER PECOS (Ft. Sumner to headwaters)

HUC 13060001 Pecos Headwaters

Beaver Creek (Porvenir Creek to the headwaters)
WQS: 20.6.4.215 AU: NM-2212_04

Previously listed as Beaver Creek for stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. There were no exceedences of any water quality standards. There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

Bull Creek (Cow Creek to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_091

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. A thermograph recorded a maximum temperature of 26.6 degrees C. **Therefore, temperature will be added as a cause of non support.**

Cow Creek (Pecos River to Bull Creek)
WQS: 20.6.4.217 AU: NM-2214.A_090

Previously listed for stream bottom deposits, reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Cow Creek (Pecos River to headwaters)", this assessment unit was split after it was intensively sampled during the 2001 Upper Pecos Part 2 survey. A thermograph deployed below the confluence with Bull Creek recorded a maximum temperature of 27.15 degrees C. A second thermograph was deployed in 2003 to verify the listing. There were also 8 of 8 turbidity exceedences, likely due to a high intensity wildfire in the upper reaches of this watershed in 2000. **Therefore, temperature and turbidity will be added as causes of non support.**

Cow Creek (Bull Creek to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_102

2004 ACTION: Previously called "Cow Creek (Pecos River to headwaters)", this assessment unit was split after it was intensively sampled during the 2001 Upper Pecos Part 2 survey. A thermograph deployed below the confluence with Bull Creek recorded a maximum temperature of 26.31 degrees C. A second thermograph was deployed in 2003 to verify the listing. There were also 9 of 9 turbidity exceedences, likely due to a high intensity wildfire in the upper reaches of this watershed in 2000. **Therefore, temperature and turbidity will be added as causes of non support.**

Gallinas River (Las Vegas reservoir to headwaters)
WQS: 20.6.4.215 AU: NM-2212_00

Previously listed for turbidity, stream bottom deposits and temperature. Turbidity information is available from three stations. Station 08380000 has an exceedences ratio of 2/11 while stations 08379940 and UPR212.002530 are 0/18 and 0/3 respectively. The listing for turbidity should be partially supported at station 08380000 and full support at the other two stations. Temperature data are available from six stations. SWQB station HP32 the exceedences ratio is 2/23 for a Full Support, Impacts Observed assessment. At station 08380500, the ratio is 3/18 or partially supported. All other stations are full support. Aluminum should be added to the listing due to acute exceedences 3/17 at station HP32 during the last 5 years. This station is not supported for acute aluminum exceedences. Station UPR212.002530 also has shown one exceedence in the past five years and should be listed as Full Support, Impacts Observed. Three stations were selected for biological assessments on the Gallinas River above the diversion in 1993. The upper most station was selected as the reference site for this survey. The next down stream site was located just above the confluence with Porvenir Creek was FS (96%). The next down stream site at the USGS gage near the diversion was Full Support, Impacts Observed (75%). The cited cause of reduced biological community at the lower site was impacts from sediment in the river.

1998 ACTION: Turbidity, stream bottom deposits and temperature were retained as causes of non-support. Aluminum was added as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was split after it was intensively sampled during the 2001 Upper Pecos Part 2 survey. Grab data at three stations indicated 2 or 24 temperature exceedences. Thermographs were deployed in 2003 at both the USFS boundary and near the USGS gage above the Las Vegas diversion. Both showed exceedences of 23 degrees C. **Therefore, temperature shall remain a cause of non support.** According to the survey lead, there are breeding populations of brown trout and rainbow trout all through this AU. At the forest service boundary location, water is warmed by slow passage through the beaver ponds above the campground – these ponds are full of trout. At the lower site, the water passing through the Las Vegas watershed is warmed significantly because of the nature of the canyon – much bedrock, little or no shade. There were 0 of 24 exceedences of the chonic aluminum criterion of 0.087 mg/L. There were 3 of 24 exceedences of the turbidity criterion of 10 NTU. **Therefore, aluminum and turbidity will be removed as a cause of non support.** There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

Gallinas River (San Augustin to Las Vegas diversion)
WQS: 20.6.4.216 AU: NM-2213_21

Previously listed for unknown toxicity, dissolved oxygen, turbidity, total ammonia, stream bottom deposits and temperature. Intensive surveys were conducted by the SWQB in 1990 and 1993. The listing for unknown toxicity is from toxicity testing conducted at stations near the WWTP in Las Vegas during the 1990 survey. Toxicity was noted in waters immediately upstream from the WWTP and in the effluent itself. This listing is valid in a distance from above the WWTP to the first station below the WWTP. Dissolved oxygen data are available from seven stations along this reach. All stations are full support for dissolved oxygen (1/60). The turbidity listing is erroneous because there is no turbidity standard for this segment. Total ammonia data show 15/15 exceedences at station UPR211.001525 that is immediately downstream from the Las Vegas WWTP. No exceedences are recorded at other stations above and below this station. This station should be listed as not supported for total ammonia. Temperature information is available from both surveys. The cumulative temperature exceedences for both surveys were 0/123. This entire reach should be upgraded to full support for temperature. An additional listing will be made for biological assessment based on information from the 1993 survey. All stations from the biological assessment were full support with the exception of station UPR211.001525 that is the station immediately downstream from the WWTP. This station was 42% of the reference condition with a nutrient enrichment index (Hilsenhoff Biotic Index) of 7.24 that places it as fairly poor with significant organic pollution present.

1998 ACTION: Dissolved oxygen, turbidity and temperature were removed as causes of non-support. Unknown toxicity, ammonia and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. There was one exceedence of the chronic aluminum criteria of 0.087 mg/L using the summer consecutive day mean. **Therefore, aluminum will be removed as a cause of non support.** Benthic macroinvertebrates were sampled at the station @ San Augustin and compared to the reference station Gallinas River 01. The bio score was 78% of reference. There were 37% fines at the study station compared to 32% fines at the reference station. **Therefore, SBD will be removed and benthic macroinvertebrates will be added as a cause of non support**. Additional data will need to be collected to determine the cause.

During the time of the 2001 survey, there was a major problem with the WWTP in this AU due to improper installation of the chlorination/de-chlorination system. The fecal coliform criterion was exceeded 4 of 9 times (44%) and the chronic ammonia criterion was exceeded three times (more than one leads to a listing according to the Assessment Protocol). There were also three chronic sediment toxicity tests (all on 11/13/01) with significant effect noted as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). **Therefore, total ammonia remains, unknown toxicity was changed to sediment bioassay – chronic toxicity, and fecal coliform was added as causes of non support.** The improper installation has since been repaired, which is expected to have corrected the fecal coliform problem (80cfu/100mL measured on 8/28/2002. SWQB NPDES staff note there is still a concern regarding the WWTP's ability to reduce both ammonia and total nitrogen. This AU will be listed as category 5C until additional data is gathered to 1) determine whether exceedences of the fecal coliform and total ammonia criteria are still occurring, 2) determine any potential plant nutrient impairment, and 3) determine the cause of sediment toxicity (if it is still occurring).

Glorieta Creek (Pecos River to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_081

2004 ACTION: This AU was intensively sampled during the 2001 Upper Pecos survey. There were 3 of 16 exceedences of the dissolved nitrate criterion, 16 of 16 exceedences of the specific conductance criterion, 3 of 14 exceedences of the dissolved oxygen criterion, 2 of 16 exceedences of the acute ammonia criterion, and 3 of 15 exceedences of the turbidity criterion. A thermograph deployed at the station Glorieta above Pecos @ Pecos NHP recorded a maximum temperature of 29.38 degrees C. **Therefore, these parameters**

were all listed as causes of non support. Results from the station immediately below the Glorieta Conference Center WWTP contributed to these impairment listings. Flow at this station is 100% effluent-dominated, therefore HQCWF is likely not an existing or attainable use in this entire AU. Accordingly, the Impairment Category for this AU is 5B.

Holy Ghost Creek (Pecos River to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_020

Previously listed for metals (aluminum) and reduction of riparian vegetation. The data is from 1991 and 1992. The exceedence ratio of the 1.5 times the chronic screening criteria is 2/7. The chronic screening criterion is 130.5ug/l. The exceedences were 300ug/l and 200ug/l respectively.

1998 ACTION: The reach was retained on the 303(d) with metals (aluminum) as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 1 survey. There were 0 of 8 exceedences of the chronic aluminum criteria of 0.087 mg/L. **Therefore, aluminum will be removed as a cause of non support.**

Pecos River (Alamitos Canyon to Willow Creek)
WQS: 20.6.4.217 AU: NM-2214.A_002

Previously listed for turbidity and metals (Zn, Pb, and Al). Turbidity data from three stations show exceedence ratios of 1/12 at UPR214.006020, 3/18 at station CON08, and 3/19 at UPR080. This reach should have a listing of partially supported for turbidity. For chronic aluminum ratios at the three stations are 5/12, 5/10, and 4/9. This reach should be listed as not supported for chronic aluminum. For chronic lead, the ratios at four stations are 0/12, 0/2, 0/10, and 0/9 with all values reported as <5 ug/l. Lead should be removed as a cause of nonsupport for this reach. Dissolved zinc data shows several exceedences of the acute criteria. Stations UPR080 have a ratio of 5/10 and UPR214.006020 has a ratio of 2/9. Station Pecos CON08 has 0/10 with all values reported as less than detection. Stations UPR080 and UPR214.006020 should be listed as not supported for zinc. However, there are pollution control requirements for metals in the decision document issued by NMED pursuant to an Administrative Order and Consent for the Terrero mine. The Surface Water Quality Bureau has reviewed the remediation document and believes that these requirements are stringent enough to implement all applicable water quality standards. The draft decision document was reviewed by EPA Region 6, (Superfund Division), and found to be acceptable. Because of these requirements, a TMDL for metals is not necessary.

1998 ACTION: Metals were removed from the 303(d) list and will be placed on the 305(b)

Report as a cause of non-support. Turbidity was retained as a cause of non-support.

NOTE: ***Pursuant to 40 CFR 130.7(b)(1)(iii), a waterbody is not required to be listed if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such waters. Pollution control requirements for the old Terrero Mine are stringent enough to implement metals criteria applicable to Willow Creek and the Pecos River downstream of Willow Creek. Standards are anticipated to be met within the next two years.***

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 1 survey. There was one exceedence of the chronic aluminum standard of 0.087 mg/L in the spring using seasonal means. There were 7 of 23 exceedences (30.4%) of the turbidity criteria of 10 NTUs. **Therefore, turbidity will be remain as a cause of non support.** This reach will be placed in 5B because the turbidity exceedences only occurred in the spring and were likely due to snowmelt runoff.

Pecos River (Tecolote Creek to Cañon de Manzanita)
WQS: 20.6.4.216 AU: NM-2213_00

Previously listed for stream bottom deposits, nutrients, reduction of riparian vegetation and streambank destabilization. A 1991 intensive survey found nutrients were not impairing the fishery use.

1998 ACTION: The reach was retained on the 303(d) with stream bottom deposits as the cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously called "Pecos River (Cañon del Oso to Alamitos Canyon), this AU was intensively surveyed during the 2001 UPR 1 survey. As a result, the AU was split and end points were slightly revised. Upper boundary of assessment unit was lowered to Cañon de Manzanita (southern boundary of Pecos National Historical Park) to match Water Quality Standards. Lower boundary changed to Tecolote Creek near Anton Chico. There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

Pecos River (Cañon de Manzanita to Alamitos)
WQS: 20.6.4.217 AU: 2214.A_003

2004 ACTION: Previously called "Pecos River (Cañon del Oso to Alamitos Canyon)", this AU was intensively surveyed during the 2001 UPR 1 survey. There were 7 of 15 turbidity exceedences of the 10 NTU criterion. Thermographs were deployed in 2001 and 2003. The maximum temperature exceeded 23 degrees C both years. **Therefore, temperature and turbidity will be listed as a cause of non support.** This reach will be placed in 5B because the turbidity exceedences only occurred in the spring and were likely due to snowmelt runoff. Pecos National Historic Park staff are in the process of developing a plan to open the park for high quality recreational fishing. Although it is not a native trout fishery, there is an exceptional population of brown trout. This is a joint effort of the Pecos NHP, NMDGF, and NMED, and others.

Pecos River (Sumner Reservoir to Santa Rosa Reservoir)
WQS: 20.6.4.211 AU: NM-2211.A_00

Previously listed for metals (Al), stream bottom deposits and fecal coliform. Assessments on this river reach are made using five stations. Two are USGS stations and three are NMED SWQB stations. For aluminum, there has been one exceedences of all stations within the last five years. This was an acute (1/4) exceedence at USGS station 08382650. The assessment protocols allow one exceedence within five years to be classified as full, support impacts observed. However, there have been more (2/4) exceedences of the chronic screening criteria at this station that would classify the reach as partial support for chronic exceedences of the Al screening criteria. All other stations are fully supporting for this criteria. For fecal coliform there have been 0/14 exceedences of the criteria within the last ten years. This reach is fully supporting for fecal coliform.

1998 ACTION: Fecal coliform was removed as cause of non-support. Metals (aluminum) and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: Previously listed as "Pecos River (Sumner Reservoir to Cañon del Oso)", this AU was split and renamed. This AU was intensively sampled during the 2001 UPR III survey. There were 0 of 27 exceedences of the chronic aluminum standard of 0.087 mg/L. **Therefore, aluminum will be removed as a cause of non support.** There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

Pecos River (Santa Rosa Reservoir to Tecolote Creek)
WQS: 20.6.4.211 AU: NM-2211.A_10

2004 ACTION: Previously listed as "Pecos River (Sumner Reservoir to Cañon del Oso)", this AU was split and renamed. This AU was intensively sampled during the 2001 UPR III survey. There were 0 of 15 exceedences of the chronic aluminum standard of 0.087 mg/L. **Therefore, aluminum will be removed as a cause of non support.** There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

Porvenir Creek (Gallinas River to Hollinger Canyon)
WQS: 20.6.4.215 AU: NM-2212_01

Previously listed for turbidity, stream bottom deposits and temperature. Turbidity data are available from one station. Station UPR212.002520 shows exceedences of 14/33. This reach should be listed as not supported for turbidity. The temperature data are from two stations. The cumulative ten year exceedences ratio for both stations is 0/42. Temperature will be upgraded to full support. A biological assessment was conducted on Porvenir creek in 1993. The biological assessment was found to be FS (81%). In addition to the NMED biological data the USGS conducted intensive surveys for physical/chemical and biological data that is published in Water Quality and Benthic Macroinvertebrate Bioassessment of Gallinas Creek, San Miguel County, New Mexico, 1987-90" (Water-Resources Investigations Report 96-4011). In this survey 6 separate assessment events were conducted over a 4 year period. The procedure used was equivalent to rapid bioassessment protocol III. The Porvenir Creek results in the seasonal surveys were 90, 95, 100, 90, 95, and 100% of the reference site. The report also states, Turbidities were 10 or more units during runoff events at all sites except site 1 (the references site, watershed size 4.6 square miles). Turbidities at site 3 (Porvenir Creek) exceeding this water-quality standard are most probably due to natural causes". Descriptions within parentheses have been added for reference. Of 18 data points, the highest turbidity reported was 25 NTU during a runoff event. The weight of evidence is in support of removal of the turbidity listing.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 2 survey. There were no exceedences of any water quality standards.

Rio Mora (Pecos River to the headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_040

1998 ACTION: Listed for stream bottom deposits. Change listing description to read as above.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This assessment unit was intensively sampled during the 2001 Upper Pecos Part 1 survey. Benthic scores were 84% of reference and percent fines were lower at the study station than reference station (4 vs.7). **Therefore, SBD will be removed as a cause of non support.**

Santa Rosa Reservoir
WQS: 20.6.4.211 AU: NM-2211.B_00

1998 ACTION: Listed for siltation and nutrients. This lake is also listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Sumner Reservoir
WQS: 20.6.4.210 AU: NM-2210_00

1998 ACTION: Listed for siltation, nutrients, and nuisance algae. This lake is also listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Tecolote Creek (Village of Tecolote to Blue Creek)
WQS: 20.6.4.215 AU: NM-2212_10

There were two Tecolote Creek listings in the 1996-1998 ¸303(d) List, Tecolote Creek from Blue Creek to the headwaters (5.6 miles) and Tecolote Creek from the Village of Tecolote to Blue Creek (20.8 miles). The uppermost reach was listed for turbidity, siltation, reduction of riparian vegetation and streambank destabilization. The lower reach was not included in the 1998-2000 ¸303(d) List. STORET data for this reach was assessed along with the lower reach (UPR212.004040, 0/4 exceedences for turbidity).

Previously listed for temperature, conductivity, turbidity, stream bottom deposits and total phosphorus. Three stations were used to assess temperature. The cumulative ratio of exceedences at these three stations was 0/87. There was a SWQB survey conducted in 1987 which shows 3/5 temperature exceedences at station UPR212.004010. This reach should be listed as partially supporting for this station only. The remainder of the reach is full support. Intensive survey information for conductivity was collected between 1988 and 1992 at several USGS stations. At station 08379187 0/347 samples exceeded the conductivity criteria of 300 Φmhos. Again at station UPR212.004010 3/5 samples exceeded the conductivity criteria. This station should be listed as partially supporting for conductivity. All others are fully supporting.

Turbidity is another parameter for which there is extensive information. At USGS station 08379187 turbidity information was collected intensively over a day approximately every two months from 1988 to 1992. During this period 22/52 samples at this station exceeded the turbidity criteria. At USGS station 08379175, similar sampling was conducted. Here only 1/28 samples exceeded the criteria. At USGS station 08389178 only 1/11 samples exceeded the criteria. During a 1987 SWQB survey turbidity at stations UPR212.004020 and 4010 were 2/5 and 4/5 respectively. Therefore, station 08379187 is not supporting for turbidity, and stations UPR212.004020 and 4010 are partially supporting for turbidity. Total phosphorus should be listed as Full Support, Impacts Observed at stations 08379187 and 08379178 and fully supporting at all other stations.

1998 ACTION: **This 1998 ACTION is for both reaches 107 and 108.** Phosphorus was removed from the list as a cause of non-support. Temperature, conductivity, turbidity and stream bottom deposits were retained as causes of non-support. **Combine and rename this reach Tecolote Creek from the Village of Tecolote to the headwaters 26.4 miles affected.**

2000 ACTION: None

2002 ACTION: None. Name changed from "Tecolote Creek from the Village of Tecolote to the headwaters" because the village of Tecolote is at the confluence with the Pecos.

2004 ACTION: This assessment unit was intensively surveyed during the 2001 Upper Pecos River Part 2 study. The assessment unit was split back into two units -- Tecolote Creek (Blue Creek to headwaters) and Tecolote Creek (Village of Tecolote to Blue Creek) – because the stream changes from a wooded canyon to a broad valley at this point. There were no exceedence of any water quality standards in the upper assessment unit. A thermograph deployed above Blue Haven did not record any exceedences of the 20 degree criterion. A thermograph deployed in the lower unit near San Geronimo recorded 224 exceedences of 23 degrees C. There were 2 of 15 turbidity exceedences and 16 of 16 specific conductance exceedences in this lower unit. **Therefore, specific conductance and temperature will remain while turbidity will be removed as cause of non support.** This lower assessment unit will be placed in Category 5B because the change in stream character may warrant a change in water quality standards. Also, Wright Canyon Creek which flows

into Tecolote has a specific conductance criterion of 450 uhmos. Benthic score was 87% of reference. **Therefore, SBD will be removed as a cause of non support.**

Willow Creek (Pecos River to headwaters)
WQS: 20.6.4.217 AU: NM-2214.A_030

Originally listed as two segments. One segment was listed as the Terrero Mine drainage and the other listing was for the stream above the mine. These listings were combined into one listing with limitations on the affected mileage. The combined listings were metals (Cu, Zn, Cd, and Hg), conductivity, turbidity and stream bottom deposits. The turbidity listing of not supported appears to be valid for the entire reach. Exceedences ratios at three stations are 4/15, 8/12, and 5/17. The mercury listing should be upgraded to full support. The exceedence ratios for three stations are 0/10, 0/10, and 0/10. For copper, the listing is supported at station UPR214.00710 with an exceedences ratio of 8/10 for the chronic criteria. Two other stations UPR214.00716 and PECOSCON07 have exceedence ratios of 0/10. Cadmium follows the same pattern as copper. Station UPR214.00710 has 9/10 samples exceeding the acute criteria with stations UPR214.00716 and PECOSCON07 both with 0/10 ratios. Zinc has exceedence ratios of 9/10 and 3/15 (not supported) at stations UPR214.00710 and PECOSCON07 respectively. Station UPR214.007016 is full support. However, there are pollution control requirements for metals in the decision document issued by NMED pursuant to an Administrative Order and Consent for the Terrero mine. The Surface Water Quality Bureau has reviewed the remediation document and believes that these requirements are stringent enough to implement all applicable water quality standards. The draft decision document was reviewed by EPA Region 6, (Superfund Division), and found to be acceptable. Because of these requirements, a TMDL for metals is not necessary. All three stations show high ratios of exceedences for conductivity. These ratios 8/18, 14/14, and 10/12 at stations 7016, 7010, and PECOSCON07 respectively are not supported for conductivity.

1998 ACTION: Metals were removed from the 303(d) list and will be placed on the 305(b) list as a cause of non-support. Turbidity, conductivity and stream bottom deposits were retained as a cause of non-support.

NOTE: ***Pursuant to 40 CFR 130.7(b)(1)(iii), a waterbody is not required to be listed if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such waters. Pollution control requirements for the old Terrero Mine are stringent enough to implement metals criteria applicable to Willow Creek and the Pecos River downstream of Willow Creek. Standards are anticipated to be met within the next two years.***

2000 ACTION:

Pursuant to 40 CFR 130.7(b)(1)(iii), a TMDL is not required if other pollution control requirements required by State or federal authority are stringent enough to implement the appropriate water quality standards for such waters. Pollution

control requirements for the old Terrero Mine are stringent enough to implement standards criteria applicable to Willow Creek and the Pecos River downstream of Willow Creek

The upper Pecos Watershed is scheduled for an intensive watershed study in 2001 that will include Willow Creek and determine if water quality standards are being met on this reach. Remediation efforts continue to be implemented under the plan cited below.

See document titled, "Final Decision Document Pecos Mine Operable Unit Upper Pecos Site Terrero, New Mexico, New Mexico Environment Department, April 9, 1998"

2002 ACTION: Water quality data taken during the above-mentioned 2001 Upper Pecos intensive watershed study at Willow Creek below White Drain indicate the designated use of high quality coldwater fishery is not being attained due to continued standards exceedences of chronic cadmium, acute zinc, and chronic zinc. The hardness-dependent chronic cadmium criteria of 3.62 ug/L and 5.3 ug/L during the summer and fall sampling runs, respectively, was exceeded due to arithmetic means of 7.0 ug/L and 13.3 ug/L during summer and fall sampling runs, respectively. The hardness-dependent acute zinc criteria of 195.32 ug/L, 202.30 ug/L, and 314.98 ug/L during spring, summer, and fall sampling runs, respectively, was exceeded due to arithmetic means of 1273.3 ug/L, 2400.0 ug/L, and 9533.3 ug/L during spring, summer, and fall sampling runs, respectively. The hardness-dependent chronic zinc criteria of 196.91 ug/L, 203.95 ug/L, and 317.54 ug/L during spring, summer, and fall sampling runs, respectively, was exceeded due to arithmetic means of 1273.3 ug/L, 2400.0 ug/L, and 9533.3 ug/L during spring, summer, and fall sampling runs, respectively. Additionally, there were 3 of 8 exceedences of the irrigation use dissolved zinc criterion of 2.0 mg/L and 4 of 8 exceedences of the domestic water supply use dissolved cadmium criteria. Therefore, **chronic cadmium, acute zinc, and chronic zinc will be added as causes of Non Support.**

NOTE: Probable errors in the acute and/or chronic Zn hardness-dependent formulas have been identified in the current version of the WQS and will be corrected during the upcoming triennial review. Even so, the measured values are an order of magnitude above the calculated criteria. Minor corrections to the formulas will likely still lead to the conclusion of Non Support.

Remediation efforts appear to have reduced copper concentrations to levels that do not exceed surface water quality standards. Total mercury levels taken during the 2001 survey were all non-detect with a detection limit of 0.2 ug/L. The acute total mercury criterion of 2.4 ug/L was not exceeded during the 2001 study. The chronic total mercury standard of 0.012 ug/L is below the detection limit of SLD, so it is not possible to determine whether the

chronic standard is being exceeded unless ultra clean sampling methods and analysis methods are utilized. Therefore, **chronic total mercury will be listed as FSIO** until further study can be initiated to determine use attainment for this parameter.

2004 ACTION: During the 2001 survey, there were also 6 of 8 exceedences of the specific conductance criteria of 300 umhos/cm. **Therefore, specific conductance was retained as a cause of non support.** There was one exceedence of the turbidity criterion of 10 NTU. **Therefore, turbidity will be removed as a cause of non support.** Although benthic macroinvertebrate and pebble count data are available, they were collected in two different areas. The benthic data is not from a representative reach. Therefore, the SBD/sedimentation list will remain until additional data is collected.

There were also twelve chronic water and ten chronic sediment toxicity tests (between four locations on Willow Creek) with significant effect noted as compared to controls or reference conditions between 1999-2003 (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). According to the Assessment Protocol, since significant effects were noted in more than one chronic test, both **Sediment and Water Bioassay – Chronic will be added as a cause of non support.**

SWQB will meet with the Groundwater Quality Bureau to determine the status of the reclamation and to determine whether proposed reclamation efforts are stringent enough to meet existing water quality standards. The data is not currently available to determine the effects of the reclamation efforts on all impaired surface water quality parameters.

Wright Canyon Creek (Tecolote Creek to headwaters)
WQS: 20.6.4.215 AU: NM-2212_18

Previously listed for turbidity and total phosphorus. Data for turbidity comes from two USGS stations 08379185 and 08379182. Both of these stations, 8/31 and 33/107 respectively, indicate the fishery use is not supported. For total phosphorus, these stations have ratios of 1/23 and 3/22 respectively. Both stations are fully supporting for total phosphorus (1/23 and 3/22).

1998 ACTION: Total phosphorus was removed as a cause of non-support. Turbidity and stream bottom deposits were retained on the list as causes of non-support.

2000 ACTION: None

2002 ACTION: None

2004 Action: This assessment unit was intensively sampled during the 2001 Upper Pecos survey. There were 0 of 7 turbidity exceedences. **Therefore, turbidity will**

be removed as a cause of non support. There is no new information available at this time (4/8/04) regarding the SBD/sedimentation/siltation listing.

HUC 13060003 Upper Pecos

Pecos River (Salt Creek to Sumner Reservoir)
WQS: 20.6.4.207 AU: NM-2207_00

Previously listed for stream bottom deposits. A July 18, 1997 letter from U.S. Fish & Wildlife stated that siltation and sedimentation are not an issue for this reach of the Pecos River. Additional information is available in the report "***Record of Decision Concerning the Development of Total Maximum Daily Loads for Segments 2206 and 2207 of the Pecos River".***

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

HUC 13060007 Upper Pecos -Long Arroyo

Pecos River (Rio Peñasco to Salt Creek)
WQS: 20.6.4.206 AU: NM-2206.A_00

Previously listed for metals (Hg), dissolved oxygen, total ammonia, total dissolved solids and stream bottom deposits. A review of historical data and an intensive seasonal survey conducted by NMED in April, July and November of 1997 produced no supporting data for listing this reach of the Pecos River. A July 18, 1997 letter from U.S. Fish & Wildlife stated that siltation and sedimentation are not an issue for this reach of the Pecos River. Additional information is available in the report "***Record of Decision Concerning the Development of Total Maximum Daily Loads for Segments 2206 and 2207 of the Pecos River".***

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

LOWER PECOS (TX border to Ft. Sumner)

HUC 13060008 Rio Hondo

Alto Lake

1998 ACTION: Listed for turbidity, siltation, nutrients nuisance algae, and dissolved oxygen.

2000 ACTION: None

2002 ACTION: **Turbidity, siltation, nutrients nuisance algae, and dissolved oxygen were removed.** The 1997 Clean Lakes report indicated both chronic and acute exceedences of the copper criteria. **Copper was added as a cause of Non Support** due to application of copper sulfate**.**

2004 ACTION: None

Rio Bonito (Rio Ruidoso to Angus Canyon)
WQS: 20.6.4.208 AU: NM-2208_10

Previously listed for fecal coliform and stream bottom deposits. Samples collected at two stations within five years have a cumulative ratio of 0/6 exceedences. This reach is fully supporting for fecal coliform.

1998 ACTION: Fecal coliform was removed as a cause of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Rio Hondo (Perennial reaches Pecos R to Rio Ruidoso)
WQS: 20.6.4.208 AU: NM-2208_30

Previously listed for fecal coliform, reduction of riparian vegetation and streambank destabilization. Two stations have been sampled for fecal coliform with in the last five years. Each station was 0/2 for fecal coliform exceedences. This reach is in full support for fecal coliform. No associated physical/chemical data are available for the reduction of riparian vegetation and streambank destabilization listings.

1998 ACTION: The reach will be listed with unknown as a cause on the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Rio Ruidoso (Rio Bonito to Seeping Springs Lakes)
WQS: 20.6.4.208 AU: NM-2208_20

Previously listed for turbidity, stream bottom deposits, plant nutrients and temperature. Turbidity should be removed from the listing as there are no numeric criteria for turbidity in a coldwater fishery. Temperature data are available from four stations on the Rio Ruidoso. The cumulative ratio of temperature exceedences for these stations is 0/64. This reach is fully supporting for temperature. Fecal coliform with a ratio of 1/5 since 1993 will be added as Full Support, Impacts Observed.

1998 ACTION: Turbidity and temperature were removed as a cause of non-support. Stream bottom deposits, and plant nutrients were retained as causes of non-support. Fecal coliform will be added to the 305(b) list as Full Support, Impacts Observed.

2000 ACTION: None

2002 ACTION: None. Plant nutrient assessments completed in 2002 confirm the listing.

2004 ACTION: None

Rio Ruidoso (Seeping Springs Lakes to the Mescalero Apache Reservation)
WQS: 20.6.4.209 AU: NM-2209.A_20

Previously listed for temperature, stream bottom deposits and turbidity. Temperature data are available from six stations along the reach. Stations LPR209.012035 and 12040 are Full Support, Impacts Observed with 1/4 ratios. Station RUD12 is partially supporting with a 2/12 (17%) ratio. Stations RUD4 and RUD2 are fully supporting with 1/12 and 0/12 ratios respectively. Station 08387000 is Full Support, Impacts Observed with a 2/17 (12%) ratio. Turbidity data are available from five stations. Two stations LPR209.012035 and 12040 were samples within five to ten years. Station LPR209.012035 is not supported with 4/4 samples exceeding the criteria. Station 12040 is Full Support with a 0/4 ratio. Stations RUD12, RUD4, and RUD2 are not supported with 5/12, 8/12, and 5/12 ratios. There are five biological assessment stations on this reach. The Rio Ruidoso at the reservation boundary was used as the reference site for this survey. The next down stream site in the town of Rio Ruidoso was PS with a 67% score. The next station was at the USGS gage near the race track. The score here was also 67% of the reference. The site immediately above the WWTP was FSIO with a 74% score. The site below the WWTP was PS at 58%. These scores reflect a general loss of habitat indicating only partial support of the aquatic life use. Both biological assessment

stations on this reach were rated at 58% of the reference condition. This supports the listing as partially supported.

1998 ACTION: Temperature, stream bottom deposits and turbidity were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: Plant nutrients was added as a cause of Partial Support based on plant nutrient assessments completed in 2002.

2004 ACTION: None

HUC 13060010 Rio Peñasco

Rio Peñasco (HWY 24 to headwaters)
WQS: 20.6.4.208 AU: NM-2208_00

Previously listed as "Rio Peñasco, perennial portion" and listed for turbidity and stream bottom deposits. Turbidity should be removed from the listing as there are no numeric criteria for turbidity in a coldwater fishery. Five turbidity readings were collected during a 1990 survey the greatest reading was 2.0 NTU and the mean was 1.4 NTU.

1998 ACTION: Turbidity was removed as a source of non-support. Stream bottom deposits was retained as a source of non-support.

2000 ACTION: None

2002 ACTION: None. Previous listing was split into two because it spanned two water quality standard segments.

2004 ACTION: None

Rio Peñasco (HWY 24 to headwaters)
WQS: 20.6.4.206 AU: NM-2206.A_10

Previously listed as "Rio Peñasco, perennial portion" and listed for turbidity and stream bottom deposits. Turbidity should be removed from the listing as there are no numeric criteria for turbidity in a coldwater fishery. Five turbidity readings were collected during a 1990 survey the greatest reading was 2.0 NTU and the mean was 1.4 NTU.

1998 ACTION: Turbidity was removed as a source of non-support. Stream bottom deposits was retained as a source of non-support.

2000 ACTION: None

2002 ACTION: None. Previous listing was split into two because it spanned two water quality standard segments.

2004 ACTION: None

HUC 13060011 Upper Pecos-Black

Avalon Lake
WQS: 20.6.4.204 AU: NM-2204.B_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Black River (Pecos River to TX border)
WQS: 20.6.4.202 AU: NM-2202.A_10

Previously listed for metals (Al), reduction of riparian vegetation, streambank destabilization, unknown and salinity. There is no standard for salinity for this segment. Salinity will be removed as a cause of non-support. Two stations were sampled for aluminum. Station LPR202.001020 was 0/1 for exceedences and will be listed as full support. Station LPR202.001010 was 1/1 and will be listed as Full Support, Impacts Observed

1998 ACTION: The reach will remain on the 303(d) list with a cause of unknown. It will also be listed in the 305(b) report as Full Support, Impacts Observed for aluminum.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Brantley Reservoir
WQS: 20.6.4.205 AU: NM-2205_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Laguna Gatuna
WQS: unclassified AU: NM-9000.B_055

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 1-20. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water facility. Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..." Boron and Ra226 + Ra228 exist in concentration questionable in terms of toxicity though current truth to this unknown and probably premature to speculate about.

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

Laguna Quatro
WQS: unclassified AU: NM-9000.B_059

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 1-20. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water facility. Narrative section on toxic substances in section 1105, paragraph F. "...from any

substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..." Boron and Ra226 + Ra228 exist in concentration questionable in terms of toxicity though current truth to this unknown and probably premature to speculate about.

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

Laguna Tres
WQS: unclassified AU: NM-9000.B_061

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 1-20. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from produced water facility. Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..." Boron and Ra226 + Ra228 exist in concentration questionable in terms of toxicity though current truth to this unknown and probably premature to speculate about.

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

Laguna Uno
WQS: unclassified AU: NM-9000.B_066

1998 ACTION: Not listed

2000 ACTION:

Toxic Substances: Lake Water Quality Assessment Surveys, Playa Lakes 1992, NMED/SWQB, pages 81-98. Wildlife habitat designated use section 3100 L. Threatened by historic discharge from potash refining discharge to playa basin. Narrative section on toxic substances in section 1105, paragraph F. "...from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation..."

This playa will be listed on the 303(d) list for not meeting the designated use of wildlife habitat with the cause being the narrative standard of toxic substances.

2002 ACTION: None

2004 ACTION: None

Pecos River (Black River to Lower Tansil Dam)
WQS: 20.6.4.202 AU: NM-2202.A_00

Previously listed for metals (Al), salinity, stream bottom deposits and total ammonia. Salinity should be upgraded to full support as there have been no exceedences of total dissolved solids, sulfate and chloride criteria in the last ten years. All total ammonia data are from the five to ten year interval. The cumulative ratio of samples from three stations is 0/15. Total ammonia should be upgraded to full support. The cumulative ratio of samples from three stations for aluminum is 0/7 over the last ten years. Aluminum should be upgraded to full support.

1998 ACTION: Salinity, ammonia and aluminum were removed as causes of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Pecos River (TX border to Black River)
WQS: 20.6.4.201 AU: NM-2201_00

Previously listed for temperature, metals (Al), stream bottom deposits and salinity. Extensive temperature data are available from the last two years. One station, LPR201.000505, had 1/5 exceedences that will be listed as Full Support, Impacts Observed. The cumulative ratio at all other stations was 0/154. Salinity should be removed as a cause of nonsupport as there have been no exceedences of the criteria for total dissolved solids, sulfate and chloride. Aluminum was monitored at two stations. Station LPR201.000505 was 1/1, or Full Support, Impacts Observed, for

exceedences of the chronic screening ratio. Station 08407500 (USGS) was 1/7 within the last five years and 3/20 for the five to ten year interval. This station is also Full Support, Impacts Observed. There is one 1991 biological assessment on this reach. One station, LPR201.000505, was not supporting at 21% of the reference site. The assessment notes that it was probably due to poor substrate.

1998 ACTION: Temperature, metals and salinity were removed as causes of non-support. Stream bottom deposits was retained and biological criteria was added to causes of non-support.

2000 ACTION: None

2002 ACTION: Biological criteria was removed as a probable cause of impairment because the reduced benthic macroinvertebrate score was likely due to poor substrate conditions (see above comments). Stream bottom deposits will be retained to indicate that both benthic macroinvertebrate communities and substrate characteristics need to be studied further and addressed. Listing both stream bottom deposits and biological criteria was redundant.

2004 ACTION: None

Sitting Bull Creek (Lost Chance Canyon to Sitting Bull Springs)
WQS: unclassified AU: NM-9000.A_007

1998 ACTION: The reach was listed with plant nutrients, stream bottom deposits, fecal coliform, temperature and total phosphorus listed as causes of impairment.

2000 ACTION:

Total Phosphorus: Total phosphorus will be removed as a cause of non-support due to the lack of a total phosphorus standard for the warmwater fishery use. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

2002 ACTION: None

2004 ACTION: None

Tansil Lake (Carlsbad Municipal Lake)
WQS: 20.6.4.203 AU: NM-2203.B_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

SAN JUAN RIVER BASIN

HUC 14080101 Upper San Juan

Gallegos Canyon (San Juan River to Navajo Nation bnd)
WQS: unclassified AU: NM-9000.A_060

2004 Action: This AU was sampled during the 2002 SJR study. SJRIP also provided data from 1994-2003. There were 23 of 30 exceedences of the total recoverable selenium wildlife habitat chronic screening criteria of 7.5 ug/l (5.0 ug/L x 1.5). **Therefore, selenium was added as a cause of non support.**

Navajo Reservoir
WQS: 20.6.4.406 AU: NM-2406_00

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. This AU remains on the fish consumption guidelines for Mercury in Fish Tissue as these guidelines have not been updated since the last listing cycle.

San Juan River (Animas River to Cañon Largo)
WQS: 20.6.4.401 AU: NM-2401_00

Previously listed for metals (Hg), stream bottom deposits, salinity, and fecal coliform. Mercury data indicated full support of the fishery use as there were no exceedences of criteria (0/8) within the last 23 years. While there are no salinity (total dissolved solids) criteria for the reach, there were no exceedences of the total dissolved solids criteria for the Colorado River at Hoover Dam (723 mg/l). Fecal coliform data indicated that the contact recreation use was not supported at two stations (SJR 106 and SJR401.004020). Station SJR401.004010 indicated Full Support, Impacts Observed (1/2).

1998 ACTION: Mercury and salinity will be removed as a cause of non-support for this reach. The reach will continue to be listed as Not Supported with stream bottom deposits and fecal coliform (SJR106 and 4020).

2000 ACTION: None

2002 ACTION: Mercury in Fish Tissue (downstream of Hammond Diversion) was added as a Probable Cause because there are fish consumption guidelines from Hammond Diversion to the Hogback.

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. The USBOR also provided fecal coliform data from 2000 and 2001. There were 11 of 41 (27%) exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL. **Therefore, fecal coliform will be retained as a cause of non support.** In addition, the USBOR in conjunction with the San Juan Watershed Group provided E.coli data collected in 2003. E. coli data were also collected during the 2002 SWQB intensive survey. There were 12 of 54 (22%) exceedences of the proposed E. coli criterion of 410/100 mL in this combined E. coli data set. **This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab are implementing a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Although the final results of this study are not yet complete as of this writing (4/2/04), the bed material and fluvial geomorphology data indicate potential impairment due to stream bottom deposits as a result of large episodic sediment inputs from Cañon Largo and other ephemeral drainages possibly combined with the loss of spring flows adequate to move the sediment through the system as a result of Navajo Dam operations. This problem is noted in the results of the San Juan Recovery Implementation Plan and is incorporated into the "preferred alternative" in the preliminary final environmental impact statement (June 2003) to modify dam operations. Following the recommendations of the San Juan - River Basin Recovery Implementation Program's Biology Committee, Navajo Dam was operated from 1992 - 2001 to mimic the natural streamflow hydrograph to provide high spring releases at or near the maximum channel capacity below Navajo Dam for the purpose of providing flows to flush sediment for the purpose of cleaning cobble bars and secondary channels in the San Juan River. Spring releases were timed to occur with the high spring flows of the Animas River to provide the maximum flushing effect in the San Juan River below its confluence with the Animas River. According to the decision matrix, there were no high spring releases in during 2002 and 2003. Fieldwork for the USDA National Sedimentation Study occurred October and November 2003. Bed material characteristics measured in this time period may have been impacted by drought conditions and the fact that there were no high spring releases for two prior springs. **. This AU remains on the fish consumption guidelines for Mercury in Fish Tissue as these guidelines have not been updated since the last listing cycle.

There were also three acute water and one acute sediment toxicity tests (on 4/18/02, 5/22/02, and 9/23/02) with significant effect noted as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf).

According to the Assessment Protocol, since significant effects were noted in more than one acute test, **Water Bioassay – Acute will be added as a cause of non support.**

San Juan River (Cañon Largo to Navajo Dam)
WQS: 20.6.4.405 AU: NM-2405_10

Previously listed for metals (Hg, Se), turbidity, and stream bottom deposits. Mercury (0/15) and selenium (0/6) data indicated full support of the fishery use as there were no exceedences of criteria within 14 years. Turbidity data indicated the fishery use was not supported at station SJR104 (3/12), while there was Full Support, Impacts Observed for stations SJR405.005015 (1/8), SJR405.005035 (1/8) and SJR405.005045 (1/8).

1998 ACTION: Mercury and selenium will be removed as sources of non-support for this reach. The reach continues to be listed as Not Supported for turbidity (1 sta.) and stream bottom deposits. The reach will be listed as Full Support, Impacts Observed for turbidity at two stations.

2000 ACTION: None

2002 ACTION: Mercury in Fish Tissue (downstream of Hammond Diversion) was added as a Probable Cause because there are fish consumption guidelines from Hammond Diversion to the Hogback.

2004 ACTION: This assessment unit was intensively sampled as part of the 2002 SJR survey. The USBOR provided thermograph data for 2000-2002 for the Texas Hole. In 1992, a thermograph was deployed in the SJR near the Archuleta USGS gage as part of the SJRIP study. In 1999, a second thermograph was deployed near the dam. The maximum temperature for the available period of record was 22.81 degrees C on 7/12/01 at the Archuleta site. A thermograph was deployed by SWQB at Soaring Eagle Lodge 5/22/02 – 9/26/02. The maximum recorded temperature was 21.17 degrees C. According to the Temperature Protocol, this AU is full support for temperature. Turbidity was erroneously included as a cause of non-support on previous lists based on the information in the opening paragraph of this AU. When all stations are combined, there were a total of 3 out of 36 (8.3%) turbidity measurements in this AU when it was previously assessed. According to the Assessment Protocol, the entire AU should have been listed as Full Support Impacts Observed, not Partial Support. To verify this correction, a total of 143 turbidity measurements collected between 1994 and 2003 by the SWQB, USBOR, SJRIP, and USGS were collated and assessed against the criterion of 10 NTU. There were 21 out of 143 exceedences in this data set (14.7%). The mean of the measurements was 6.8 NTU, while the median was 4.8 NTU. According to the Assessment Protocol, this AU is Full Support for turbidity. **Therefore, turbidity will be removed as a cause**

of non support. The USBOR also provided fecal coliform data from 2000 and 2001. The USBOR in conjunction with the San Juan Watershed Group provided E.coli data from 2003. There were 2 of 18 (11%) exceedences of the single sample fecal coliform criterion of 100 CFU/100mL. **This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab are implementing a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Although the final results of this study are not yet complete as of this writing (4/2/04), the bed material and fluvial geomorphology data do not indicate impairment due to stream bottom deposits. This AU remains on the fish consumption guidelines for Mercury in Fish Tissue (downstream of Hammond Ditch) as these guidelines have not been updated since the last listing cycle. Following the recommendations of the San Juan - River Basin Recovery Implementation Program's Biology Committee, Navajo Dam was operated from 1992 - 2001 to mimic the natural streamflow hydrograph to provide high spring releases at or near the maximum channel capacity below Navajo Dam for the purpose of providing flows to flush sediment for the purpose of cleaning cobble bars and secondary channels in the San Juan River. Spring releases were timed to occur with the high spring flows of the Animas River to provide the maximum flushing effect in the San Juan River below its confluence with the Animas River. According to the decision matrix, there were no high spring releases in during 2002 and 2003. Fieldwork for the USDA National Sedimentation Study occurred October and November 2003. Bed material characteristics measured in this time period may have been impacted by drought conditions and the fact that there were no high spring releases for two prior springs. **.

HUC 14080104 Animas

Animas River (Estes Arroyo to CO border)
WQS: 20.6.4.404 AU: NM-2404_00

Previously listed for stream bottom deposits and plant nutrients. Total phosphorus data from two stations, SJR404.00345 and SJR404.003001 indicate full support of the fishery use (0/10). There is no additional data to substantiate the listing for plant nutrients.

1998 ACTION: Plant nutrients have been removed as a cause of non-support for this reach. The reach continues to be listed as Partially Supported for stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 SJR study. A thermograph deployed at Cedar Hill in 2003 recorded several temperatures greater than 23 degrees C (maximum temperature of 27.0 on 7/11/03). An additional thermograph deployed at Aztec had a max temp of 29.79 degrees on 7/19/03. **Therefore, temperature will be added as causes of non support.** **This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab are implementing a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Although the final results of this study are not yet complete as of this writing (4/2/04), the bed material and fluvial geomorphology data do not indicate impairment due to stream bottom deposits.

The potential for excessive nutrients in the Animas were noted through visual observation during the 2002 study. To address this concern, a workgroup was formed comprised of state and tribal environmental specialists and concerned citizens. The nutrient assessment protocol was performed on 8/26/03 at the site on the CO/NM border. Total phosphorus values were above the ecoregion criteria of 0.07 mg/L in >15% of the samples, and the percent DO saturation was greater than 120%. **The results of the benthic macroinvertebrate study are not available at this time, but are not expected to indicate nutrient impairment. The nutrient assessment protocol was performed on 10/07/03 at the site in Aztec just above the HWY 516 bridge. The percent DO saturation was greater than 120%. Since three or more indicators were not present at either site, this AU was determined to be full support for nutrients.

Animas River (San Juan River to Estes Arroyo)
WQS: 20.6.4.403 AU: NM-2403.A_00

Previously listed for metals (Hg, Se) and stream bottom deposits. Mercury (0/15) and selenium (0/8) data indicated full support of the fishery use as there were no exceedences of criteria.

1998 ACTION: Mercury and selenium will be removed as sources of non-support for this reach. The reach continues to be listed as Partially Supported for stream bottom deposits.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This reach was intensively sampled during the 2002 SJR study. In 1992, a thermograph was deployed near the "Animas at Farmington" USGS gage as part of the SJRIP study. The daily maximum temperature exceeded the

criterion of 27 degrees C 154 of 3384 (4.6%) total records during the full period of record and 111 of 1364 (8.1%) between 7/8/99 and 4/1/03. According to the Assessment Protocol, this AU is in full support of temperature because the exceedence rate is < 15%. There were 2 of 13 (15%) exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL based on 2002 SWQB data and 2002-2003 USGS data. **Therefore, fecal coliform will be listed as a cause of non support.** This AU may be listed as 5B because the proposed single sample E.coli criterion of 126/100mL was not exceeded (0 of 8). **This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab are implementing a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Although the final results of this study are not yet complete as of this writing (4/2/04), the bed material and fluvial geomorphology data do not indicate impairment due to stream bottom deposits.

The potential for excessive nutrients in the Animas were noted through visual observation during the 2002 study. To address this concern, a workgroup was formed comprised of state and tribal environmental specialist, as well as concerned citizens. The nutrient assessment protocol was performed on 8/25/03 at the site approx one mile above the SJR at Boyd Park. Total nitrogen values were above the ecoregion criteria of 0.42 mg/L in >15% of the samples, the percent DO saturation was greater than 120%, and the ash free dry mass of algal sampling was greater than 5 mg/cm2. The nutrient assessment protocol was also performed on 8/25/03 at the Flora Vista site. The chlorophyll a concentration was greater than 10ug/cm2, the percent DO saturation was greater than 120%, and the ash free dry mass of algal sampling was greater than 5 mg/cm2. Since three or more indicators were present at both sites, **nutrients will be added as a cause of non support.**

There were also two acute sediment toxicity tests (on 4/18/02) with significant effect noted as compared to controls or reference conditions (see http://www.epa.gov/earth1r6/6wq/ecopro/watershd/monitrng/toxnet/nm.pdf). According to the Assessment Protocol, since significant effects were noted in more than one acute test, **Sediment Bioassay – Acute will be added as a cause of non support.**

Lake Farmington (Beeline Reservoir)
WQS: unclassified AU: NM-9000.B_006

1998 ACTION: This lake is listed for mercury in fish tissue because there are fish consumption guidelines due to mercury contamination.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This AU was intensively sampled during the 2002 SJR study.

HUC 14080105 Middle San Juan

La Plata River (San Juan River to CO border)
WQS: 20.6.4.402 AU: NM-2402.A_00

Previously listed for metals (Hg, Se), salinity, plant nutrients and stream bottom deposits. Mercury (0/1) and selenium (0/6) data indicated full support of the fishery use as there were no exceedences of criteria. There have been some old data reports, from 1981 and earlier, of mercury above detection levels. This data is highly questionable. There are no applicable salinity or total dissolved solids criteria for this reach. There are no data to support the listing of stream bottom deposits. This is a flow limited river reach.

1998 ACTION: Mercury, selenium, and salinity will be removed as causes of non-support for this reach. The reach continues to be listed as Partially Supported for plant nutrients.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. The Nutrient Assessment protocol was performed July 2002. This reach was determined to not be nutrient enriched following the level two nutrient assessment analysis. A summary of the nutrient assessment is in the administrative record. **Plant nutrients were removed as a cause of non-support.** There were 5 of 11 exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL. **Therefore, fecal coliform will be added as a cause of non support**. The dissolved oxygen criterion of 6.0 mg/L was not achieved 62% of the time based on a sonde deployed under the bridge near LaPlata, and was not achieved 22% of the time based on a sonde deployed near the USGS gage near Farmington. **Therefore, dissolved oxygen will be added as a cause of non support.** This AU may be placed in Category 5B because sonde data at both locations indicates NS for DO using percentages, the grab data indicates FS for DO using percentages, and the sonde data applied to the draft large dataset DO protocol indicates FS for the Farmington site and NS for the LaPlata site. Also, the lower portion of the LaPlata is likely misclassified as a marginal coldwater fishery. Benthic macroinvertebrates were collected and pebble counts were performed at three stations along the LaPlata according to our current Stream Bottom Deposit (Sedimentation/siltation) assessment protocol: CO border (reference), immediately above the bridge at LaPlata,

and near the USGS gage near Farmington. The benthic macroninvertebrate data were not available to complete the SBD assessment at the time of this writing (4/4/04).

San Juan River (Navajo bnd at the Hogback to Animas River)
WQS: 20.6.4.401 AU: NM-2401_10

Previously listed for metals (Hg, Se), salinity and stream bottom deposits. Mercury (0/9) and selenium (0/13, within 22 years) data indicated full support of the fishery use as there were no exceedences of criteria. While there are no salinity (total dissolved solids) criteria for the reach, there were no exceedences of the total dissolved solids criteria for the Colorado River at Hoover Dam (723 mg/l).

1998 ACTION: Mercury, selenium, and salinity will be removed as causes of non-support for this reach. The reach continues to be listed as Partially Supported for stream bottom deposits.

2000 ACTION: None

2002 ACTION: Mercury in Fish Tissue (downstream of Hammond Diversion) was added as a Probable Cause because there are fish consumption guidelines from Hammond Diversion to the Hogback.

2004 ACTION: This AU was intensively sampled during the 2002 SJR study. In 1992, a thermograph has deployed near the "SJR at Farmington" USGS gage as part of the SJRIP study. The maximum temperature for the available period of record did not exceed the criterion of 32.2 degrees C. The USBOR provided fecal coliform data from 2000 and 2001. USGS fecal coliform data were also available from 2002 and 2003. There were 9 of 26 (35%) exceedences of the single sample fecal coliform criterion of 400 cfu/100 mL. **Therefore, fecal coliform will be listed as a cause of non support.** In addition, the USBOR in conjunction with the San Juan Watershed Group provided E.coli data collected in 2003. E. coli data were also collected during the 2002 SWQB intensive survey. There were 13 of 40 (33%) exceedences of the proposed E. coli criterion of 410/100 mL in this combined E. coli data set. **This AU has a historic listing for stream bottom deposits. SWQB and the USDA National Sedimentation Lab are implementing a special study to determine whether or not the AU is impaired due to excessive sedimentation (i.e., stream bottom deposits). Although the final results of this study are not yet complete as of this writing (4/2/04), the bed material and fluvial geomorphology data indicate moderate impairment due to stream bottom deposits as a result of large episodic sediment inputs from Cañon Largo and other ephemeral drainages possibly combined with the loss of spring flows adequate to move the sediment through the system as a result of Navajo Dam operations. This problem is noted in the results of the San Juan Recovery

Implementation Plan and is incorporated into the "preferred alternative" in the preliminary final environmental impact statement (June 2003) to modify dam operations. Following the recommendations of the San Juan - River Basin Recovery Implementation Program's Biology Committee, Navajo Dam was operated from 1992 - 2001 to mimic the natural streamflow hydrograph to provide high spring releases at or near the maximum channel capacity below Navajo Dam for the purpose of providing flows to flush sediment for the purpose of cleaning cobble bars and secondary channels in the San Juan River. Spring releases were timed to occur with the high spring flows of the Animas River to provide the maximum flushing effect in the San Juan River below its confluence with the Animas River. According to the San Juan Model Operating Rule Decision Tree, there were no high spring releases in during 2002 and 2003, and there are none planned for 2004. Fieldwork for the USDA National Sedimentation Study occurred October and November 2003. Bed material characteristics measured in this time period may have been impacted by drought conditions and the fact that there were no high spring releases for two prior springs. This AU remains on the fish consumption guidelines for Mercury in Fish Tissue as these guidelines have not been updated since the last listing cycle.

LITTLE COLORADO RIVER BASIN

HUC 15020003 Carrizo Wash

Quemado Lake
WQS: unclassified AU: NM-9000.B_096

1998 ACTION: Not listed

2000 ACTION:

Quemado Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982)*** by stratification and hypolimnetic dissolved oxygen depletion during the summer. Nitrogen was solely limiting. Though the blue-green algae were present, they did not dominate the phytoplankton. Total phosphorus concentration peaked at .230 mgP/l. Quemado Lake gives the most overwhelming aesthetic indication of impaired water quality due to obnoxious odors and unsightly stagnant masses produced by the death of surface films of algae, phytoplankton and macrophytes.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for nuisance algae, nutrients and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

HUC 15020004 Zuni

McGaffey Lake
WQS: unclassified AU: NM-9000.B_08.

1998 ACTION: Not listed

2000 ACTION:

McGaffey Lake was characterized from April 11, 1990 to April 4, 1991 (in a report titled, ***New Mexico Clean Lakes Program, Phase I: Diagnostic – Feasibility Study for the Restoration and Watershed Management of McGaffey Lake, McKinley County, New Mexico, October 1994).*** McGaffey Lake is highly productive as evidenced by extensive macrophyte beds, high phytoplankton density and occasional fish die-offs. McGaffey Lake's ephemeral tributary system is an inadequate, unreliable and unpredictable water source.

Prolonged drought during the period when the fieldwork was conducted precluded making the direct measurements necessary to construct nutrient and hydrologic budgets. Analyses of sediment, however, revealed that high concentrations of nutrients are present in lake bottom deposits. Thus internal nutrient loading, i.e. intermittent recycling of nutrients into the water column from the sediments, probably accounts for much of the lake's extreme eutrophic condition. The investigators obtained samples during a snowmelt runoff event in which a large amount of soil was washed into the lake from the adjacent road and parking area. These data indicate that direct overland runoff may also contribute importantly to McGaffey Lake's annual nutrient supply.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for pH, nutrients, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

Rio Nutria (Zuni Pueblo bnd to headwaters)
WQS: unclassified AU: NM-9000.A_029

Listed for mercury chronic (Hg). Water quality data from USGS 09386900 (Rio Nutria Near Ramah, NM) collected from 1988 to 1992 was assessed. There were 4 of 22 exceedences of the total mercury chronic screening criterion of 0.018 ug/L (=1.5 x 0.012 ug/L). The rest were non detects with a detection limit of 0.1 ug/L.

1998 ACTION: This reach will remain on the list as Partially Supporting its use until this metals listing can be verified.

2000 ACTION: None

2002 ACTION: None. Name was revised to remove portion under tribal jurisdiction.

2004 ACTION: None

GILA RIVER BASIN

HUC 15040001 Upper Gila

Black Canyon Creek (East Fork Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_21

Previously listed for metals (Al, chronic), temperature, and total phosphorus. Limited temperature data are available but do support a listing of not supported at stations GRB503.007523 and 7525. Stations 09565, 07543, and 09563 are Full Support, Impacts Observed. For total phosphorus, 1992 data indicated Full Support, Impacts Observed (1/1 at two stations). More recent data indicated full support (0/9 at two stations). For Al, a 0/6 ratio of exceedences to samples at two sites indicates full support.

1998 ACTION: Aluminum and phosphorus were removed as causes of non-support. Temperature was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. There were 1 of 8 pH exceedences and 1 of 8 turbidity exceedences detected during this survey. A thermograph was deployed from 4/28/00 until 10/3/00 to determine the level of temperature impairment and to generate data for the SSTEMP model. The temperature criterion was exceeded 37% of the time. **Temperature was retained as a cause of Non Support.** A TMDL was prepared for temperature.

There were 3 of 6 TOC exceedences. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains

a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

2004 ACTION: None

Canyon Creek (Middle Fork Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_43

Previously listed for plant nutrients. The phosphorus criteria was exceeded in on sample from 1992, (1/1, station GRB503.009571), indicating Full Support, Impacts Observed. Total phosphorus will be listed in the 1998 305(b) Report as FSIO.

1998 ACTION: Plant nutrients and unknown were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000 and 2001. There were exceedences of 0.6%, 13.6%, 3%, and 53.3% of the temperature, dissolved oxygen, pH, and turbidity criteria, respectively, measured by YSI sondes. **Turbidity was added as a cause of Non Support.** A TMDL was prepared turbidity.

A level two nutrient assessment was performed in 2001. The results of the assessment are in the administrative record. **Plant Nutrients was retained as a cause of Non Support.** A TMDL was prepared for plant nutrients.

2004 ACTION: None

Diamond Ck (East Fork Gila R to headwaters)
WQS: unclassified AU: NM-2503_43

Previously listed for temperature and total phosphorus. Values for both parameters are limited to one sample. Because of this limited data set the listing will be changed to Full Support, Impacts Observed based on 1/1 ratios at the stations.

1998 ACTION: The reach was removed from the 303(d) list and will be listed as Full Support, Impacts Observed on the 305(b) list.

2000 ACTION: None

2002 ACTION: None**.** According to SWQB staff comments, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat.

2004 ACTION: None.

Gila River (East Fork)
WQS: 20.6.4.503 AU: NM-2503_20

Previously listed as "East Fork of the Gila River from the confluence with West Fork to the confluence of Beaver and Taylor Creek" and listed for metals (Al), total ammonia, pH, total phosphorus, and total organic carbon. While aluminum exceeded the chronic screening level at station GRB503.007540 (2/3), there were no acute or chronic criteria exceedences. For total ammonia, the entire reach should be upgraded to full support based on 0/24 exceedences from four stations over ten years. The pH listing should be limited to station GRB503.007547 with 2/9 exceedences within the last five years. All other stations are fully supporting for pH. The total phosphorus listing of not supporting is verified at station 7540 (5/9). Station 7541 is Full Support, Impacts Observed and all other stations are full support. Total organic carbon is not supported at station 7540, but is full support at station 7547. A biological assessment was conducted in 1996 by NMED. The biological assessment of two stations (GRB503.007540 and GRB 503.007547) found that the fishery use was fully supported (100% and 96% of reference).

1998 ACTION: Ammonia was removed as a cause of non-support. Based on the biological data pH, phosphorus and total organic carbon were removed as causes of non-support. Aluminum was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 1999 and 2000. There were 1 of 8 turbidity exceedences and 2 of 8 aluminum exceedences. **Aluminum was retained as a cause of Non Support.** A TMDL was written for chronic aluminum.

2004 ACTION: None

Gila River (Middle Fork)
WQS: 20.6.4.503 AU: NM-2503_40

Previously listed as "Middle Fork of the Gila River from the mouth on the West Fork of the Gila River to the USFS Ranger Station" and listed for metals (Al), temperature, turbidity, and total phosphorus. There were no exceedences of acute or chronic criteria for aluminum though the chronic screening level was exceeded one time (1/3) at station GRB503.009560, indicating Full Support, Impacts Observed. For temperature, exceedence ratios at stations 9580 (1/6) and 9575 (0/6) support changing the listings to Full Support, Impacts Observed and full support respectively. Station 9560 has an exceedences ratio of 4/9 that would make it not supporting for temperature. Turbidity is Full Support, Impacts Observed at station 9560 and full support at stations 9575 and 9580. Total phosphorus is full support at all stations with a cumulative five year ratio of 0/27 at three stations. A biological assessment was conducted in 1996 by NMED. The biological assessment of three stations (GRB503.009580, GRB503.009575 and GRB503.009560) found full support of the fishery use (100% of reference at all sites).

1998 ACTION: Based on the biological information the reach was removed from the 303(d) list. The reach will go to the 305(b) list as Full Support, Impacts Observed for aluminum.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. The temperature criterion was exceeded 67% and 22.8% of the time according to thermographs at two stations. **Temperature was added as a cause on Non Support.**

2004 ACTION: None

Gila River (Mogollon Creek to Gila Hot Springs)
WQS: 20.6.4.502 AU: NM-2502.A_30

Previously listed as "Gila River from Mogollon Creek to the East and West Fork of the Gila River." Additional data indicated turbidity (4/9) should be added to this reach for station GRB502.008055.

1998 ACTION: Turbidity was added as a cause of non-support.

2000 ACTION: None

2002 ACTION: There were 4 of 9 turbidity exceedences of the 25 NTU criterion for primary contact recreation during a 1996 survey. Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared.

Gila River (West Fork below Gila Cliff Dwellings)
WQS: 20.6.4.503 AU: NM-2503_10

Previously listed as "West Fork of the Gila River from the confluence with the East Fork of the Gila River to above the Gila Cliff Dwellings" and listed for turbidity. The turbidity listings should be downgraded to not supported based on 6/9 ratios at two stations. A biological assessment was conducted in 1996 by NMED.
The assessment found full support of the fishery use (90% of reference at station GRB503.008055).

1998 ACTION: Based on the biological data, the reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. The temperature

criterion was exceeded 33.5% of the time according to the thermograph data. **Temperature was added as a cause on Non Support.**

2004 ACTION: None

Gilita Creek (Middle Fork to Willow Creek)
WQS: 20.6.4.503 AU: NM-2503_45

Previously listed as "Gilita Creek from the confluence with Snow Canyon Creek to Willow Creek" and listed for metals (Al), temperature, and total phosphorus. Two stations GRB503.007545 and 9587 define this reach. There was one exceedence the chronic screening level for aluminum at station GRB503.007545, but no exceedences of the acute or chronic criteria, indicating Full Support, Impacts Observed. The temperature listing should be changed to full support for station 7547 (0/6) and not supported at station 9587 (2/6). Total phosphorus should be upgraded to Full Support, Impacts Observed at station 7545 and full support (0/9) at station 9587. A biological assessment was conducted in 1996 by NMED. The assessment found full support of the fishery use (100% of reference at station GRB503.007545).

1998 ACTION: Based on the biological assessment the reach was removed from the 303(d) list. The reach will be placed on the 305(b) list as Full Support, Impacts Observed for aluminum.

2000 ACTION: None

2002 ACTION: This assessment unit was intensively survey in 2000. The temperature criterion was exceeded 17.8% of the time according to the thermograph data. **Temperature was added as a cause of Non Support.** Chronic aluminum was exceeded 3 of 8 times during the survey. **Chronic aluminum was added as a cause of Non Support. pH measurements were outside of the water quality standard range of 6.6-9.0 during 1 of 8 measurements.** Turbidity exceeded the 10 NTU water quality standard during 1 of 8 measuremetns. These exceedences led to a conclusion of Full Support, Impacts Observed for both.

2004 ACTION: None

Iron Creek (Middle Fork Gila R to headwaters)
WQS: 20.6.4.503 AU: NM-2503_44

Previously listed for total phosphorus and temperature. Two stations, GRB503.009577 and 9578, define the assessment for this reach. For total phosphorus, these stations have exceedence ratios of 0/8 and 0/9 respectively. Total phosphorus is full supported for this reach. For temperature, the exceedence ratios are 0/6 and 0/6 within five years. This reach is full support for temperature. A 1996 biological assessment found full support of the fishery use (96% of reference at station GRB503.009577).

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

Lake Roberts
WQS: 20.6.4.504 AU: NM-2504_20

2002 ACTION: Listed for temperature, pH, and nutrients based on the 1996 lakes study.

2004 ACTION: None

Mogollon Creek (Perennial reaches abv USGS gage)
WQS: 20.6.4.503 AU: NM-2503_02

Previously listed for metals (Pb, Al) and stream bottom deposits. This reach is defined by USGS station 09430600. Aluminum at this station has a chronic screening level ratio of 5/14 making it not supporting for aluminum. At a hardness of 40 mg/l the chronic screening level was exceeded 2/16 with no exceedences of the acute level.

1998 ACTION: Aluminum, lead and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. Access to historic sampling sites was limited. **A TMDL was written for chronic aluminum using historic STORET data.** The sample station was dry on several occasions. Historic data indicated 0 of 7 lead exceedences while flowing. **Lead was removed as a cause of Non Support.** Historic and current water quality data do not indicate impairment due to stream bottom deposits narrative criteria. **Stream bottom deposits was removed as a cause of Non Support.**

2004 ACTION: None

Sapillo Creek (Gila River to Lake Roberts)
WQS: 20.6.4.503 AU: NM-2503_04

Previously listed for nuisance algae. Three stations, GRB503.006530, 006520 and 006540 define the assessment of this reach. Total phosphorus data indicated full support (0/3, and 0/9) at stations 006520 and 006540 and Full Support, Impacts Observed (1/9) at station GRB503.006530. A 1996 biological assessment found that nutrients and nuisance algae were not a problem (Hilsenhoff Biotic Index of 4.55), but also found partial support of the fishery use (65% of reference at station

GRB503.006530).

1998 ACTION: Nuisance algae were removed as causes of non-support. Biological impairment and unknown were added as causes of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. Unknown was removed as a cause and replaced with the following results. There were 4 of 8 TOC exceedences of the criterion, so a TMDL was prepared. In 2002, The WQCC deleted the total organic carbon criterion (20.6.4.900C of NMAC) for the high quality coldwater fishery designated use. The TOC criterion was adopted in 1973. Before then, the water quality standards contained an ambient narrative criterion for combined COD/BOD. This criterion, adopted originally in 1967, stated that "materials in solution and in suspension which exert an oxygen demand, shall not be present in concentrations sufficient to reduce the dissolved oxygen in the stream to 50 percent of the saturation concentration or to 6.0 mg/l" for trout-producing and warm-water fish producing waters. In 1973, the Commission replaced this narrative criterion with the current numeric criterion for TOC, applicable to the high quality coldwater fishery designated use. Since then, this criterion has been rendered unnecessary. Over the years, the Commission has adopted use-specific and segment-specific dissolved oxygen criteria that offer a higher degree of protection than the TOC criterion. EPA considers the TOC criterion to be an artifact from an earlier time. Indeed, only one other state—Louisiana—still maintains a TOC criterion, and that number is used only as a discharge limitation for effluents and storm water discharges. **TOC was removed as a cause of Non Support.**

Examination of benthic macroinvertebrate data collected in 2001 did not indicate any biological impairment. **Biological impairment was removed as a cause of Non Support**.

Sonde data collected in 2001 indicated impairment for turbidity. **Turbidity was added as a cause of Non Support**. A TMDL for turbidity was prepared.

2004 ACTION: None

Snow Canyon Creek (Gilita Creek to Snow Lake)
WQS: 20.6.4.503 AU: NM-2503_46

Previously listed for metals (Al), temperature, dissolved oxygen, total phosphorus, stream bottom deposits and turbidity. All assessments were based on single data points. Because of the limited data available this listing will be changed to Full Support, Impacts Observed for all parameters, except stream bottom deposits.

1998 ACTION: Aluminum, temperature, dissolved oxygen, total phosphorus and turbidity were removed as causes of non-support. Stream bottom deposits was retained as a cause of non-support.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. There were 1 of 8 aluminum and 1 of 8 lead exceedences recorded. The channel was often on 05/31/01 and 06/18/01. Historic and current water quality data do not indicate impairment due to stream bottom deposits narrative criteria. **Stream bottom deposits was removed as a cause of Non Support.**

2004 ACTION: None

Taylor Creek (Beaver Creek to Wall Lake)
WQS: 20.6.4.503 AU: NM-2503_23

Previously listed for turbidity, temperature and metals (Al, chronic). For turbidity, a 0/18 ratio of exceedences to samples within the last five years supports upgrading the nonsupport listing for turbidity to full support. Temperature data over the last the years indicates non-support (6/11 and 9/15). Aluminum data also indicates non-support (2/3 and 1/3). Biological criteria at station GRB503.007550, FSIO 68% of the reference site.

1998 ACTION: Turbidity was removed as a cause of non-support. Temperature and metals were retained as causes of non-support. Biological criteria at station GRB503.007550, FSIO 68% of the reference site will be listed in the 1998 305(b) Report.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2001. The temperature criterion was exceeded 51.6% of the time according to the thermograph data. **Temperature was retained as a cause of Non Support.** Chronic aluminum was exceeded 3 of 8 times during the survey. **Chronic aluminum was retained as a cause of Non Support.** TMDLs were written for temperature and chronic aluminum. The turbidity criterion was exceeded 3 of 8 times during the survey. **Turbidity was added as a cause of Non Support.**

Taylor Creek (Perennial reach above Wall Lake)
WQS: 20.6.4.503 AU: NM-2503_24

2002 ACTION: This assessment unit was surveyed in 2001. The temperature criterion was exceeded 53.4% of the time according to the thermograph data. **Temperature was added as a cause of Non Support.** Chronic aluminum was exceeded 4 of 8 times during the survey. **Chronic aluminum was**

added as a cause of Non Support. Acute aluminum was exceeded 2 of 8 times during the survey. **Acute aluminum was added as a cause of Partial Support.** Chronic lead was exceeded 1 of 8 times during the survey. **Chronic lead was added as Full Support Impact Observed.** Acute aluminum was exceeded 2 of 8 times during the survey. **Acute aluminum was added as a cause of Partial Support.** The turbidity criterion was exceeded 2 of 8 times during the survey. **Turbidity was added as a cause of Partial Support.**

2004 ACTION: None

Turkey Creek (Gila River to headwaters)
WQS: 20.6.4.503 AU: NM-2503_03

Previously listed for temperature. Data is from 1992 and 1975. The exceedence ratio was 1/1 in 1992 and 0/1 in 1975. The reach is Full Support, Impacts Observed. Turkey creek was sampled for biological assessment in 1992. It was selected as the reference site for its high quality habitat.

1998 ACTION: The reach was removed the 303(d) list. It will be added to the 305(b) list as Full Support, Impacts Observed for temperature.

2000 ACTION: None

2002 ACTION: This assessment unit was surveyed in 2000. The temperature criterion was exceeded 45% of the time according to the thermograph data. **Temperature was added as a cause of Non Support.** The dissolved oxygen criterion was exceeded 2 of 8 times during the survey. **Dissolved oxygen was added as a cause of Non Support.**

2004 ACTION: None

Wall Lake
WQS: 20.6.4.504 AU: NM-2504_10

1998 ACTION: Not listed

2000 ACTION:

Wall Lake was characterized (in a report titled, ***New Mexico Clean Lakes Program, Classification Phase I, Final Report, September 1982*** and a report titled***, Lake Water Quality Assessment Surveys for Selected New Mexico Lakes, 1996)*** as having temperature and dissolved oxygen stratification despite a shallow depth of 2.6 m. Euglena sp. dominated the phytoplankton population and phosphorus was the sole limiting nutrient during all seasons. Macrophyte coverage was considerable virtually covering the bottom during the summer and with 45% remaining in the fall. As macrophyte concentrations declined during the fall, chlorophyll concentrations increased. Use of the lake is impaired due to excessive aquatic macrophyte coverage and sediment accumulation.

Although the data for this lake is dated, it is still listed in the State's 305(b) Report as impaired for dissolved oxygen, nutrients, nuisance algae and siltation and therefore will be listed on the 303(d) List until new data is collected to either verify or refute the listing.

2002 ACTION: None

2004 ACTION: None

Willow Creek (Gilita Creek to headwaters)
WQS: 20.6.4.503 AU: NM-2503_47

Previously listed for plant nutrients. In 1992 NMED conducted an intensive survey of the upper Gila River watershed and found that nitrogen and phosphorus levels were low. During a 1996 survey, the creek was revisited and visually found to be free from excessive plant nutrients. Based on the professional judgement of NMED staff, plant nutrients are not impairing designated uses.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None

2004 ACTION: None

HUC 15040002 Upper Gila - Mangas

Bear Creek (Gila River nr Cliff to headwaters)
WQS: unclassified AU: NM-2503_01

Previously listed for metals (Al, Cu, and Zn). There are no dissolved metals data available for this reach.

1998 ACTION: Aluminum, copper and zinc were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: According to SWQB staff comments, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for metals.

2004 ACTION: None

Carlisle Creek (Perennial reaches abv Gila River)

WQS: unclassified AU: NM-2502.A_02

Previously listed as "Carlisle Creek , perennial portions in New Mexico" and listed for metals (Al, Cu, Zn, Cd). There are no metals data, historical or otherwise, to support this listing.

1998 ACTION: Aluminum, cadmium, copper and zinc were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: According to SWQB staff comments, this reach goes dry. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for metals.

2004 ACTION: None

Gila River (AZ border to Red Rock)
WQS: 20.6.4.501 AU: NM-2501_00

Previously listed as "Gila River from the NM-AZ border to Mangas Creek" and listed for turbidity and stream bottom deposits. Turbidity data are from two stations both with an exceedence ratios of 2/3. This reach will be listed as not supported for turbidity.

1998 ACTION: Turbidity and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: The original reach was split into two because it spans two different water quality standard segments. **Benthic macroinvertebrate sampling at the station Gila at Lower Box indicated Full Support Impacts Observed for stream bottom deposits** (81% of reference biological score). A de-list letter was prepared under the original reach name.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared under the original reach name.

2004 ACTION: None

Gila River (Mangas Creek to Mogollon Creek)
WQS: 20.6.4.502 AU: NM-2502.A_10

Previously listed for turbidity and stream bottom deposits. There are again very limited data on this reach. There is one station which has been monitored only once in 1992. An exceedence ratio of 3/3 for turbidity will result in a listing of not supported.

1998 ACTION: Stream bottom deposits and turbidity were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: The original reach was split into two because it spans two different water quality standard segments. **Benthic macroinvertebrate sampling at the station Gila below Mogollon Creek indicated Full Support Impacts Observed for stream bottom deposits** (81% of reference biological score). A de-list letter was prepared.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared.

2004 ACTION: None

Gila River (Red Rock to Mangas Creek)
WQS: 20.6.4.502 AU: NM-2502.A_00

Previously listed as "Gila River from the NM-AZ border to Mangas Creek" and listed for turbidity and stream bottom deposits. Turbidity data are from two stations both with an exceedence ratios of 2/3. This reach will be listed as not supported for turbidity.

1998 ACTION: Turbidity and stream bottom deposits were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: The original reach was split into two because it spans two different water quality standard segments. **Benthic macroinvertebrate sampling at the station Gila below Mangus Creek indicated Full Support Impacts Observed for stream bottom deposits** (71% of reference biological score). A de-list letter was prepared under the original reach name.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared under the original reach name.

2004 ACTION: None

Mangas Creek (Gila River to Mangas Springs)
WQS: 20.6.4.502 AU: NM-2502.A_21

Previously listed for turbidity, stream bottom deposits and plant nutrients. Limited turbidity data 1/3 will result in a change in the listing to Full Support, Impacts Observed for turbidity.

1998 ACTION: Turbidity was removed as a cause of non-support. Stream bottom deposits and plant nutrients were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: **Benthic macroinvertebrate sampling at the station Gila below Mangus Creek indicated Full Support Impacts Observed for stream bottom deposits** (59% and 64% of reference biological score depending which reference station was used for comparison). A de-list letter was prepared.

A level two nutrient assessment was performed in 2001. The results of the assessment are in the administrative record. **Plant Nutrients was retained as a cause of Non Support.** A TMDL was prepared for plant nutrients.

2004 ACTION: None

HUC 15040003 Animas Valley

North Lordsburg
WQS: unclassified AU: NM-9000.B_091

1998 ACTION: **Not listed**

2000 ACTION:

Lake Water Quality Assessment Surveys, Playa Lakes 1993, NMED/SWQB, pages 25-36. Wildlife habitat and livestock watering uses do exist. Numeric standards, general standards and antidegradation policy do not place this playa on the list.

This playa is currently meeting surface water quality standards and will not be listed on the 303(d) list.

2002 ACTION: None

2004 ACTION: None

South Lordsburg
WQS: unclassified AU: 9000.B_099

1998 ACTION: Not listed

2000 ACTION:

Lake Water Quality Assessment Surveys, Playa Lakes 1993, NMED/SWQB, pages 25-36. Wildlife habitat and livestock watering uses do exist. Numeric standards, general standards and antidegradation policy do not place this playa on the list.

This playa is currently meeting surface water quality standards and will not be listed on the 303(d) list.

2002 ACTION: None

2004 ACTION: None

SAN FRANCISCO RIVER BASIN

HUC 15040004 San Francisco

Apache Creek (Tularosa River to Hardcastle Canyon)
WQS: unclassified AU: NM-2603.A_44

Previously listed for temperature, conductivity, total phosphorus and fecal coliform. There is only one sampling station on this reach. All data are from a 1990 survey. For temperature, 5/5 (100%) of the samples exceeded the criteria. For conductivity, 5/5 (100%) of the samples exceeded the criteria. For total phosphorus 4/5 (80%) of the samples exceeded the criteria. For fecal coliform, 1/1 (100%) of the samples exceeded criteria. The criteria for temperature, conductivity, and total phosphorus are not supporting the designated use. Fecal coliform is Full Support, Impacts Observed.

1998 ACTION: Fecal coliform was removed as a cause of non-support. Temperature, conductivity and total phosphorus were retained as causes of non-support.

2000 ACTION:

Temperature: Apache Creek was sampled a total of 11 times. Of these, the channel was dry three times and 1/8 exceeded the 25.0°C HQCWF standard. (12.5% exceedence)

Add to the 305(b) Report as FSIO.

Conductivity: Apache Creek was sampled a total of 11 times. Of these, the channel was dry three times and 7/8 exceeded the conductivity standard. (87.5% exceedence)

Conductivity will be retained as a cause of non-support

Total Phosphorus: Apache Creek was sampled a total of 11 times. Of these, the channel was dry three times and 8/8 exceeded the standard for total phosphorous. (100% exceedence)

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Dissolved Oxygen (DO): Apache Creek was monitored a total of 11 times. Of these, the channel was dry three times and 1/8 exceeded the DO standard (12.5% exceedence).

Add to the 305(b) Report as FSIO.

2002 ACTION: According to SWQB Silver City staff comment, this is an ephemeral reach in an intermittent channel. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for conductivity.

2004 ACTION: None

Centerfire Creek (San Francisco R to headwaters)
WQS: 20.6.4.603 AU: NM-2603.A_50

Previously listed for temperature, conductivity and plant nutrients. There is only one sample station on this reach. All data are from a 1992 survey. For temperature, 1/3 (33%) of the samples exceeded the criteria. For conductivity, 3/3 (100%) of the samples exceeded the criteria. Temperature is Full Support, Impacts Observed. Conductivity is partially supported.

1998 ACTION: Temperature was removed as a cause of non-support and will be listed in the 1998 305(b) Report as full support, impacts observed. Conductivity and plant nutrients were retained as causes of non-support.

2000 ACTION: None

2002 ACTION: A level two nutrient assessment was performed in 2001. The results of the assessment are in the administrative record. **Plant Nutrients was retained as a cause of Non Support.** A TMDL was prepared for plant nutrients.
This assessment unit was intensively surveyed in 2001. The conductivity criterion was exceeded 15.7% of the time according to sonde data. **Conductivity was retained as a cause of Partial Support.** A TMDL was prepared for conductivity.

The temperature criterion was exceeded 32.8% of the time according to sonde data. **Temperature was added as a cause of Non Support.** The pH criterion was out of the acceptable range of 6.6 to 8.8 46.9% of the time according to sonde data. **pH was added as a cause of Non Support.**

2004 ACTION: None

Mineral Creek (San Francisco R to the headwaters)
WQS: 20.6.4.603 AU: NM-2603.A_20

Previously listed for metals (Al), temperature and turbidity. There are no data for this reach since 1975. This information is considered to be inadequate to make a listing. The stream will be sampled during the next intensive survey and reassessed to determine the appropriate listing.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION:

Metals (Al chronic): Mineral Creek was sampled a total of 7 time for metals. Of these, one day the channel was dry and 4/6 (66.6%) of the remaining days Aluminum was at Chronic toxicity levels.

Metals (Al chronic) will be added as a cause of non-support for this reach

Temperature: Mineral Creek was monitored a total of 11 times for temperature. Of these, one day the channel was dry and 5/10 (50.%) exceeded the temperature standard.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: According to SWQB Silver City staff comment, this is an ephemeral reach. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for temperature.

2004 ACTION: None

Mule Creek (San Francisco R to Mule Springs)
WQS: 20.6.4.603 AU: NM-2601_01

Previously listed for reduction of riparian vegetation and streambank destabilization. A 1985 NMED survey of Mule Creek found that water quality standards were met in Mule Creek.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: Field surveys confirmed that all applicable water quality standards for this reach are being met.

2002 ACTION: None

Negrito Creek (South Fork)
WQS: 20.6.4.603 AU: NM-2603.A_43

Previously listed for reduction of riparian vegetation and streambank destabilization. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with unknown as the cause of non-support.

2000 ACTION:

Temperature: One thermograph was deployed on South Negrito Creek approximately 300 feet above the confluence with Fork Negrito Creek. A 17.2% exceedence (914/5330) of the temperature standard was recorded.

Temperature will be added as a cause of non-support for this reach

2002 ACTION: None. A TMDL was written for temperature. **Copper, lead, and zinc were added as Full Support Impacts Observed**. There were 1 of 7 exceedences of the criteria during the 1998 survey. Staff believes the samples were contaminated at the time of sample due to backwashing of HCl rinse into a metal valve.

2004 ACTION: None

Negrito Creek (Tularosa River to confl of N and S Forks)
WQS: 20.6.4.603 AU: NM-2603.A_42

Previously listed for temperature and plant nutrients. There is only one sampling station on this reach. All data are from a 1990 survey. For temperature, 1/5 samples exceeded the criteria making this reach Full Support, Impacts Observed. The assessment review also found that for total phosphorus, 3/5 samples exceeded the criteria. Data for total phosphorus are partially supporting the designated use. A biological assessment was conducted at one station (SFR603.004030) in 1990. This assessment indicated Full Support, Impacts Observed (76% of reference). The Hilsenhoff Biotic Index was 4.53 indicating plant nutrients were not a problem.

1998 ACTION: Temperature and plant nutrients were removed as causes of non-support with unknown listed as a cause of non-support.

2000 ACTION:

Stream Bottom Deposits: Two monitoring sites were located on the Negrito Creek Segment 2603. They include: Negrito Creek below South Fork & Negrito Above Tularosa.
Based on data gathered during the 1998-99 survey and attainment matrix Table 4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, these sites rank as Fully Supporting Impacts Observed (FSIO) and Partially Supporting (PS). Scores were as follows: Negrito Below South Fork 78% bio, 54.13 embeddedness, and 7% fines (Table 4 FSIO). Negrito Above Tularosa 57% bio.; 37.8 embeddedness.; and 5% fines (Table 4 PS) The low percentage of fine sediments (7 and 5% respectively) implies

that the macroinvertebrate communities at the Negrito Above Tularosa site are likely adversely effected by something other than stream bottom deposits. Morphological data collected at each site further supports the conclusion that this reach is NOT physically impaired.

Add to the 305(b) Report as FSIO.

Temperature: One thermograph was deployed on the Negrito Creek approximately 300 feet below the confluence with South Fork Negrito Creek. A 14.3% exceedence (690/4829) of the temperature standard was recorded.

Add to the 305(b) Report as FSIO.

pH: Negrito Creek was monitored a total of 11 times in 1998-99. Of these, a total of 1/11 (9.1%) exceeded the pH standard.

Add to the 305(b) Report as FSIO.

2002 ACTION: The 1998 thermograph data was re-evaluated using the Temperature Assessment Protocol. The temperature exceeded 23 degrees Celsius, so the reach was **listed as Non Support for temperature.**

2004 ACTION: None

San Francisco River (AZ border to Dry Creek)
WQS: 20.6.4.601 AU: NM-2601_00

Previously listed as two segments (Dry Creek to Whitewater Creek and Border to Dry Creek), then joined as "San Francisco River from the AZ-NM Border to Whitewater Creek," then split back into two in 2002. Previously listed for stream bottom deposits and nutrients this reach should have an additional listing of Full Support, Impacts Observed for aluminum (chronic). This listing is because of 1/2 exceedences of the chronic toxic screening criteria for aluminum in the past 5 years. There are two (1992 and 1996) biological assessments on this reach at one station. The 1996 biological assessment showed the reach FS (81%) of the reference while the 1992 biological assessment was FSIO (72%) of the reference.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None. Split back into the two as described above.

2004 ACTION: None

San Francisco River (Centerfire Creek to AZ border)
WQS: 20.6.4.602 AU: NM-2602_20

Previously listed as "San Francisco River from Largo Canyon to the New Mexico-Arizona border" and listed for temperature, pH, total ammonia and plant nutrients. There are two sampling stations on this reach (SFR602.006035 and SFR602.006040). All data are from 1992 and 1995 surveys. For temperature, at station SFR602.006040, 0/9 of the samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, temperature 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For pH, at station SFR602.006040, 1/9 (11%) of the samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, pH 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For total ammonia, at station SFR602.006040, 1/9 (11%) of the samples exceeded the criteria in the 1995 survey, while 3/3 (100%) of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total ammonia 0/9 of the samples exceeded the criteria in the 1995 survey, while 0/4 (0%) of the samples taken in 1992 exceeded the criteria. For total phosphorus, at station SFR602.006040, 1/10 (10%) of the samples exceeded the criteria in the 1995 survey, while 3/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total phosphorus 0/9 of the samples exceeded the criteria in the 1995 survey, while 2/4 of the samples taken in 1992 exceeded the criteria. For temperature, station SFR602.006040 is fully supporting its designated use, while station SFR602.005035 is partially supporting its designated use. For pH, station SFR602.006040 is fully supporting impacts observed, its designated use, while station SFR602.005035 is partially supporting its designated use. For total ammonia, station SFR602.006040 is fully supporting impacts observed, for its designated use, while station SFR602.005035 is fully supporting its designated use. For total phosphorus, station SFR602.006040 is fully supporting impacts observed, its designated use, while station SFR602.005035 is fully supporting its designated use. There are two biological assessments on this reach at one station (1992 and 1995) that indicate full support of the fishery use. In 1992 station 6040 was 100% of the reference while station 6035 was 81% of the reference. (Data from 1987 collected from station 6040 was the reference). In 1996 station 6035 was 90% of the reference (station 6040 was the reference).

1998 ACTION: A portion of this reach, the San Francisco River from Centerfire Creek to the New Mexico Arizona border (15 miles) was retained on the 303(d) list with temperature, pH, ammonia and plant nutrients listed as causes of non-support.

2000 ACTION:

Stream Bottom Deposits: Three monitoring sites were located on the San Francisco River Segment 2302. They include: SFR at above Reserve; SFR Below the Box; and SFR above Luna. Based on data gathered during the 1998-99 survey and attainment matrix Tables 2 &4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, this reach ranks as Fully Supporting and/or Full Support Impacts Observed.

Scores were as follows: SFR Above Reserve 83% bio, n/a embeddedness, and 36% fines (Table 2 FS).
SFR Below the Box 78% bio.; 56.7 embeddedness.; and 59% fines (Table 4 FSIO) SFR Above Luna (Ref.) 100% bio.; 52.7 embeddedness.; and 11% fines (Table 4 FS).

Add to the 305(b) Report as FSIO.

Turbidity: A 1998-99 survey indicated an 18% exceedence, whereby 2/11 samples exceeded the 25 NTU standard for primary contact recreation.

Turbidity will be added as a cause of non-support for this reach

Temperature: One thermograph was deployed in this segment (2602). The thermograph was deployed at Head-of-the-ditch campground above the town of Luna. Temperatures exceeded the 25.0°C segment-specific water quality standard 52/1725 times (3% exceedence), between 7/15/98 and 9/25/98 with a maximum temperature of 28.5°C recorded.

Temperature will be retained as a cause of non-support

pH: The 1998-99 survey indicated no exceedences in 11 samples.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on this reach of the San Francisco River.

Total Ammonia: The 1998-99 survey indicated no exceedences in 11 samples.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for total ammonia on this reach of the San Francisco River.

Plant Nutrients: Plant nutrients will remain listed as a cause of non-support.

Plant nutrients will be retained as a cause of non-support

2002 ACTION: **Temperature and plant nutrients remain on the list**. A level two nutrient assessment was performed in 2001. The results are in the administrative record. TMDLs were written for temperature and plant nutrients.

Effective February 23, 2000, the criterion of 25 NTU for primary contact recreation was removed. Since the narrative standard for turbidity still applies, SWQB examined benthic macroinvertebrate communities on the reach to determine whether turbidity impairment was occurring. **Turbidity was removed as a cause of Non Support**. A de-list letter was prepared.

2004 ACTION: None

San Francisco River (Dry Creek to Whitewater Creek)
WQS: 20.6.4.601 AU: NM-2601_10

Previously listed as two segments (Dry Creek to Whitewater Creek and Border to Dry Creek), then joined as "San Francisco River from the AZ-NM Border to Whitewater Creek," then split back into two in 2002. Previously listed for stream bottom deposits and nutrients this reach should have an additional listing of Full Support, Impacts Observed for aluminum (chronic). This listing is because of 1/2 exceedences of the chronic toxic screening criteria for aluminum in the past 5 years. There are two (1992 and 1996) biological assessments on this reach at one station. The 1996 biological assessment showed the reach FS (81%) of the reference while the 1992 biological assessment was FSIO (72%) of the reference.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION: None

2002 ACTION: None. Split back into the two as described above. Chronic lead was added as FSIO.

2004 ACTION: None

San Francisco River (Canyon Largo to Centerfire Creek)
WQS: 20.6.4.602 AU: NM-2602_10

Previously listed as "San Francisco River from Largo Canyon to the New Mexico-Arizona border" and listed for temperature, pH, total ammonia and plant nutrients. There are two sampling stations on this reach (SFR602.006035 and SFR602.006040). All data are from 1992 and 1995 surveys. For temperature, at station SFR602.006040, 0/9 of the samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, temperature 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For pH, at station SFR602.006040, 1/9 (11%) of the samples exceeded the criteria in the 1995 survey, while 1/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, pH 2/9 (22%) of the samples exceeded the criteria in the 1995 survey, while 0/3 of the samples taken in 1992 exceeded the criteria. For total ammonia, at station SFR602.006040, 1/9 (11%) of the samples exceeded the criteria in the 1995 survey, while 3/3 (100%) of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total ammonia 0/9 of the samples exceeded the criteria in the 1995 survey, while 0/4 (0%) of the samples taken in 1992 exceeded the criteria. For total phosphorus, at station SFR602.006040, 1/10 (10%) of the samples exceeded the criteria in the 1995 survey, while 3/3 of the samples taken in 1992 exceeded the criteria. At station SFR602.005035, total phosphorus 0/9 of the samples exceeded the criteria in the 1995 survey, while 2/4 of the samples taken in 1992 exceeded the criteria. For temperature, station SFR602.006040 is fully supporting its designated use, while station SFR602.005035 is partially supporting its designated use. For pH, station SFR602.006040 is fully

supporting impacts observed, its designated use, while station SFR602.005035 is partially supporting its designated use. For total ammonia, station SFR602.006040 is fully supporting impacts observed, for its designated use, while station SFR602.005035 is fully supporting its designated use. For total phosphorus, station SFR602.006040 is fully supporting impacts observed, its designated use, while station SFR602.005035 is fully supporting its designated use. There are two biological assessments on this reach at one station (1992 and 1995) that indicate full support of the fishery use. In 1992 station 6040 was 100% of the reference while station 6035 was 81% of the reference. (Data from 1987 collected from station 6040 was the reference). In 1996 station 6035 was 90% of the reference (station 6040 was the reference).

1998 ACTION: This reach was split into two. This portion was de-listed because the impairments occurred in the portion between Centerfire and the AZ border. A portion of this reach, the San Francisco River from Centerfire Creek to the New Mexico Arizona border (15 miles) was retained on the 303(d) list with temperature, pH, ammonia and plant nutrients listed as causes of non-support.

2000 ACTION: None

2002 ACTION: None. Stream bottom deposits were noted as Full Support Impacts Observed based on benthic macroinvertebrates collected at two stations: below Upper Box and above Reserve.

2004 ACTION: None

San Francisco River (Whitewater Creek to Largo Canyon)
WQS: 20.6.4.601 AU: NM-2601_20

Previously listed for metals (Al) and stream bottom deposits. There are two sampling stations used to assess this reach. The ratio of exceedences to samples for chronic aluminum is 0/4. This reach is Fully Supporting for Aluminum. There is one 1996 biological assessment on this reach at two stations. The biological assessment showed the reach FS (90% and 84%) of the reference.

1998 ACTION: The reach was removed from the 303(d) list.

2000 ACTION:

Metals: Three monitoring sites were located on the San Francisco River Segment 2301. They include: SFR at the Glenwood Gage; and SFR below Reserve. Based on data gathered during the 1998-99 survey each site was monitored a total of seven times. Due to contamination detected in a one set of QA samples, metals data collected on 6/3/98 was eliminated. Otherwise, no exceedences were documented (0/18 exceedences for the segment).

SFR at the Glenwood 0/6 exceedences
SFR at Pueblo Creek 0/6 exceedences
SFR Below Reserve 0/6 exceedences

Stream Bottom Deposits: Two monitoring sites were located on the San Francisco River Segment 2301. They include: SFR at the Glenwood Gage; and SFR below Reserve. Based on data gathered during the 1998-99 survey and attainment matrix Tables 2 & 4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, this reach ranks Not Supporting below the town of Reserve and Full Support Impacts Observed below the town of Glenwood. Scores were as follows:
SFR at the Glenwood Gage 78% bio, 61.3 emb, and 38% fines (Table 4 FSIO).
SFR Below Reserve 61% bio.; 82.3emb.; and 50% fines (Table 4 NS)

Stream bottom deposits will be added as a cause of non-support

2002 ACTION: Using the updated Stream Bottom Deposit protocol, the reach was determined to be Full Support Impacts Observed. Stream bottom deposits was removed as a cause of Non Support. A de-list letter was prepared.

2004 ACTION: None

Silver Creek (Mineral Creek to headwaters)
WQS: unclassified AU: NM-2603.A_21

Previously listed for cyanide and aluminum. No associated physical/chemical data are available.

1998 ACTION: The reach was retained on the 303(d) with cyanide and aluminum as the causes of non-support.

2000 ACTION:

Metals (Al chronic): Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry. No exceedences of any heavy metal standard were recorded during the remaining 6 sampling times.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for metals on Silver Creek.

Cyanide: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry.

No exceedences of cyanide were recorded during the remaining 6 sampling times.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for cyanide on Silver Creek.

Temperature: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry and 1/6 (16.6%) exceeded the temperature standard.

Add to the 305(b) Report as FSIO.

Turbidity: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry and 2/6 (16.6%) exceeded the 10 NTU Turbidity Standard.

Turbidity will be added as a cause of non-support for this reach

Conductivity: Silver Creek was monitored a total of 11 times. Of these, 5 days the channel was dry and 2/6 (33.3%) exceeded the conductivity standard.

Conductivity will be added as a cause of non-support for this reach

2002 ACTION: According to SWQB Silver City staff comment, this is an ephemeral reach. Therefore, the only designated uses that apply are livestock watering and wildlife habitat. The above causes of non-support are related to other designated uses, so they do not apply to this reach. A de-list letter was prepared for turbidity and conductivity.

2004 ACTION: None

Trout Creek (San Francisco R to headwaters)
WQS: unclassified AU: NM-2603.A_60

Previously listed for total phosphorus. There is only one sample station on this reach. All data are from a 1992 survey. For total phosphorus, 1/1 (100%) of the samples exceeded the criteria. Through application of the assessment protocol total phosphorus is Full Support, Impacts Observed.

1998 ACTION: The reach was removed from the 303(d) list and will be added to the 305(b) list as Full Support, Impacts Observed for phosphorus.

2000 ACTION:

Total Phosphorus: Trout Creek was monitored 8 times for nutrients. Of these, 8/8 (100%) exceeded the Total Phosphorous standard with an

average value of 0.145 mg/l

There is no longer a standard associated with total phosphorus. The Nutrient Assessment Protocol will be used to assess nutrient loading on this reach.

Metals (Pb chronic): Trout Creek was monitored 6 times for metals. Of these, 1/6 exceeded the Chronic Standard for lead.

Add to the 305(b) Report as FSIO.

2002 ACTION: None. According to SWQB Silver City staff comment, this is an ephemeral reach. Therefore, the only designated uses that apply are livestock watering and wildlife habitat.

2004 ACTION: None

Tularosa River (San Francisco R to Apache Creek)
WQS: 20.6.4.603 AU: NM-2603.A_10

Previously listed for temperature, pH, fecal coliform, total ammonia, total phosphorus and turbidity. There are two sampling stations on this reach. All data are from 1990, 1992 and 1995 surveys. For temperature, at station SFR603.004035, 1/5 of the samples exceeded the criteria in the 1990 survey this station was not resurveyed in the past 5 years. At station SFR603.004025 3/5 (60%) of the samples taken in 1990 exceeded the criteria, while 1/3 (33%) of the samples taken in 1992 exceeded criteria and 2/9 (22%) of the samples taken in 1995 exceeded the criteria. For pH, at station SFR603.004035, 0/5 (0%) of the samples exceeded the criteria in the 1990 survey. At station SFR603.004025 0/5 (0%) of the samples taken in 1990 exceeded the criteria, while 2/3 (66%) of the samples taken in the 1992 survey exceeded the criteria and 5/9 (55%) of the samples taken in 1995 exceeded the criteria. For fecal coliform, at station SFR603.004035, 1/1 (100%) of the samples exceeded the criteria in the 1990 survey. At station SFR603.004025, 0/1 (0%) of the samples taken in 1990 exceeded the criteria , while 1/1 (100%) of the samples taken in the 1992 survey exceeded the criteria and 0/3 (0%) of the samples taken in 1995 exceeded the criteria, indicating full support for the last five years. For total ammonia, at station SFR603.004035, 1/5 (20%) of the samples taken in the 1990 survey exceeded the criteria. At station SFR603.004025, 1/5 (20%) of the samples taken in the 1990 survey exceeded the criteria, while 0/3 (0%) of the samples taken in 1992 exceeded the criteria and 1/9 (11%) of the samples taken in 1995 exceeded the criteria, indicating full support in the last five years. For total phosphorus, at station SFR603.004035, 1/5 of the samples taken in the 1990 survey exceeded the criteria. At station SFR603.004025, 4/5 (80%) of the samples taken in the 1990 survey exceeded the criteria, while 1/3 (33%) of the samples taken in 1992 exceeded the criteria and 0/9 (0%) of the samples taken in 1995 exceeded the criteria, indicating full support for the last five years. For turbidity, at station SFR603.004035, 2/5 (40%) of the samples taken in the 1990 survey exceeded the criteria. At station SFR603.004025, 1/8 (12%) of the samples taken within 5-10 years exceeded the criteria, while 0/9 (0%) of the samples taken in the past 5 years exceeded the criteria. For temperature, stations SFR603.004035 and SFR603.004025 are partially supported their designated use. For pH, station SFR603.004035 is fully supporting its designated use, while station SFR603.004025 is Not Supporting its designated use. For fecal coliform, station

SFR603.004035 is full supporting, impacts observed, while station SFR603.004025 is fully supporting its designated use. For total ammonia, stations SFR603.004035 and SFR603.004025 are fully support, impacts observed. For total phosphorus, station SFR603.004035 is Full Support, Impacts Observed, while station SFR603.004025 is fully supporting its designated use. For turbidity, station SFR603.004035 is partially supported, while station SFR603.004025 is fully supporting its designated use.

1998 ACTION: Fecal coliform, ammonia and phosphorus were removed as causes of non-support. Temperature, pH and turbidity were retained as causes of non-support.

2000 ACTION:

Temperature: Two thermographs were deployed on the Tularosa River segment (2603), one approximately 1 mile upstream of the confluence with the San Francisco River (Tularosa above SFR) and the other at Forest Road 233 crossing (Tularosa at Forest Road 233). No exceedences of the segment- specific 25.0°C temperature were recorded at the Tularosa above SFR site (0/1832). However, exceedences were recorded at the Tularosa at Forest Road 233 (17/5432).

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for temperature on the Tularosa River.

pH: Three sampling sites were located on the Tularosa River segment 2603. Tularosa above SFR, Tularosa at Forest Road 233, and Tularosa above Aragon. No exceedences of the pH Standard were recorded at any site 0/33.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for pH on the Tularosa River.

Turbidity: Three sampling sites were located on the Tularosa River segment 2603. Tularosa above SFR, Tularosa at Forest Road 233, and Tularosa above Aragon. No exceedences of the 10 NTU Turbidity Standard were recorded at any site 0/33.

Water quality standards, as assessed using the 1998 Assessment Protocol, are currently being met for turbidity on the Tularosa River.

Stream Bottom Deposits: Three monitoring sites were located on the Tularosa River Segment 2603. They include: Tularosa Above SFR; Tularosa at FR 233; and Tularosa above Aragon. Based on data gathered during the 1998-99 survey and attainment matrix

Tables 2 &4 contained within the Draft Protocol for the Assessment of Stream Bottom Deposits, this reach ranks as Fully Supporting and/or Full Support Impacts Observed. Scores were as follows:
Tularosa Above SFR 78% bio, 58.8 embeddedness, and 28.6% fines (Table 4 FSIO). Tularosa at FR 233 83% bio. n/a embeddedness.; and 9% fines (Table 2 & 4 FS)
Tularosa above Aragon 70% bio.; n/a embeddedness.; and 14% fines (Table 2 & 4 FS)

Add to the 305(b) Report as FSIO.

Conductivity: Three sampling sites were located on the Tularosa River segment 2603. Tularosa above SFR, Tularosa at Forest Road 233, and Tularosa above Aragon. The 1998-99 survey documented a 36.4% exceedence (4/11) for Conductivity at one site (Tularosa River at Forest Road 233). However, no exceedences (0/22) were documented at the other two locations (Tularosa River above SFR and Tularosa above Aragon)

Conductivity will be added as a cause of non-support for this reach

2002 ACTION: None. A TMDL was written for conductivity.

2004 ACTION: None

Whitewater Creek (San Francisco R to Whitewater Campground)
WQS: 20.6.4.603 AU: NM-2603.A_10

Previously listed for metals (Al), turbidity, stream bottom deposits and fecal coliform. There is one sampling station on this reach. The data support the turbidity and metals listings. For fecal coliform, 0/4 samples collected in the past ten years exceed the designated criteria. This reach is fully supporting for fecal coliform.

1998 ACTION: Fecal coliform was removed as a cause of non-support. Aluminum, turbidity, and stream bottom deposits were retained as causes of non-support.

2000 ACTION:

Metals (Al chronic): Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey documented a 28.5 % exceedence (2/7) for Aluminum (NS Chronic Toxicity Level) at the Catwalk Site and a 14.3% exceedence (1/7) for Zinc (FSIO Acute Toxicity Level) at the Glenwood site.

Metals (Al chronic) will be retained as a cause of non-support

Metals (Zn acute): Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey documented a 14.3% exceedence (1/7) for Zinc (FSIO Acute Toxicity Level) at the Glenwood site.

Add metals (Zn acute) to the 305(b) report as FSIO.

Stream Bottom Deposits: Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). Whitewater Creek at the Catwalk was ranked as Fully Supporting based on the "Combined Biological Integrity and Condition of Aquatic Habitat Attainment Matrix", (Table 4) in the Draft Protocol for the Assessment of Stream Bottom Deposits. Scores were as follows: 77% bio, 37.3% emb, and 5.4% fines. Whitewater Creek at Glenwood was ranked as not supporting based on the same criteria. Its score were as follows: 68% bio, 69.5% emb, and 44% fines.

Stream bottom deposits will retained as a cause of non-support

Turbidity: Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey documented no exceedences (0/12) of the 10 NTU turbidity standard at the Catwalk site (FS). However, 4/12 (33.3%) exceedences were documented at the Glenwood Site (NS). We have assessed this as partially supporting the use

Turbidity will be retained as a cause of non-support

2002 ACTION: A TMDL was written for turbidity. A de-list letter was written for chronic aluminum because the exceedences were all at the station above the campground. Chronic aluminum was added as a cause of non support for the upper reach (see below).

Using the updated Stream Bottom Deposit protocol, the reach was determined to be Full Support Impacts Observed. 9.2% fines were measured at the reference station of Whitewater Creek at Whitewater Campground. The sample station, Whitewater at Glennwood, had a biological score of 59% reference with 51.5% fines. **Stream bottom deposits was removed as a cause of Non Support**. A de-list letter was prepared.

2004 ACTION: None

Whitewater Creek (Whitewater Campground to headwaters)
WQS: 20.6.4.603 AU: NM-2603.A_12

2000 ACTION:

Metals (Al chronic): Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey documented a 28.5 % exceedence (2/7) for Aluminum (NS Chronic Toxicity Level) at the Catwalk Site and a 14.3% exceedence (1/7) for Zinc (FSIO Acute Toxicity Level) at the Glenwood site.

Metals (Al chronic) was inadvertently added as a cause of non-support to the lower reach when it should have been added to this upper reach.

Stream Bottom Deposits: Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). Whitewater Creek at the Catwalk was ranked as Fully Supporting based on the "Combined Biological Integrity and Condition of Aquatic Habitat Attainment Matrix", (Table 4) in the Draft Protocol for the Assessment of Stream Bottom Deposits. Scores were as follows: 77% bio, 37.3% embeddedness, and 5.4% fines. Whitewater Creek at Glenwood was ranked as not supporting based on the same criteria. Its score were as follows: 68% bio, 69.5% embeddedness, and 44% fines.

Stream bottom deposits will retained as a cause of non-support.

Turbidity: Two sampling sites were located on Whitewater Creek. (Whitewater Creek at the Catwalk and Whitewater Creek at Glenwood). The 1998-99 survey documented no exceedences (0/12) of the 10 NTU turbidity standard at the Catwalk site (FS).

2002 ACTION: **Chronic aluminum was added as a cause of Non Support**. Whitewater Creek at Whitewater Campground is a reference station with 9.2% fines. Using the updated Stream Bottom Deposit protocol, the reach was determined to be Full Support Impacts Observed.

2004 ACTION: None